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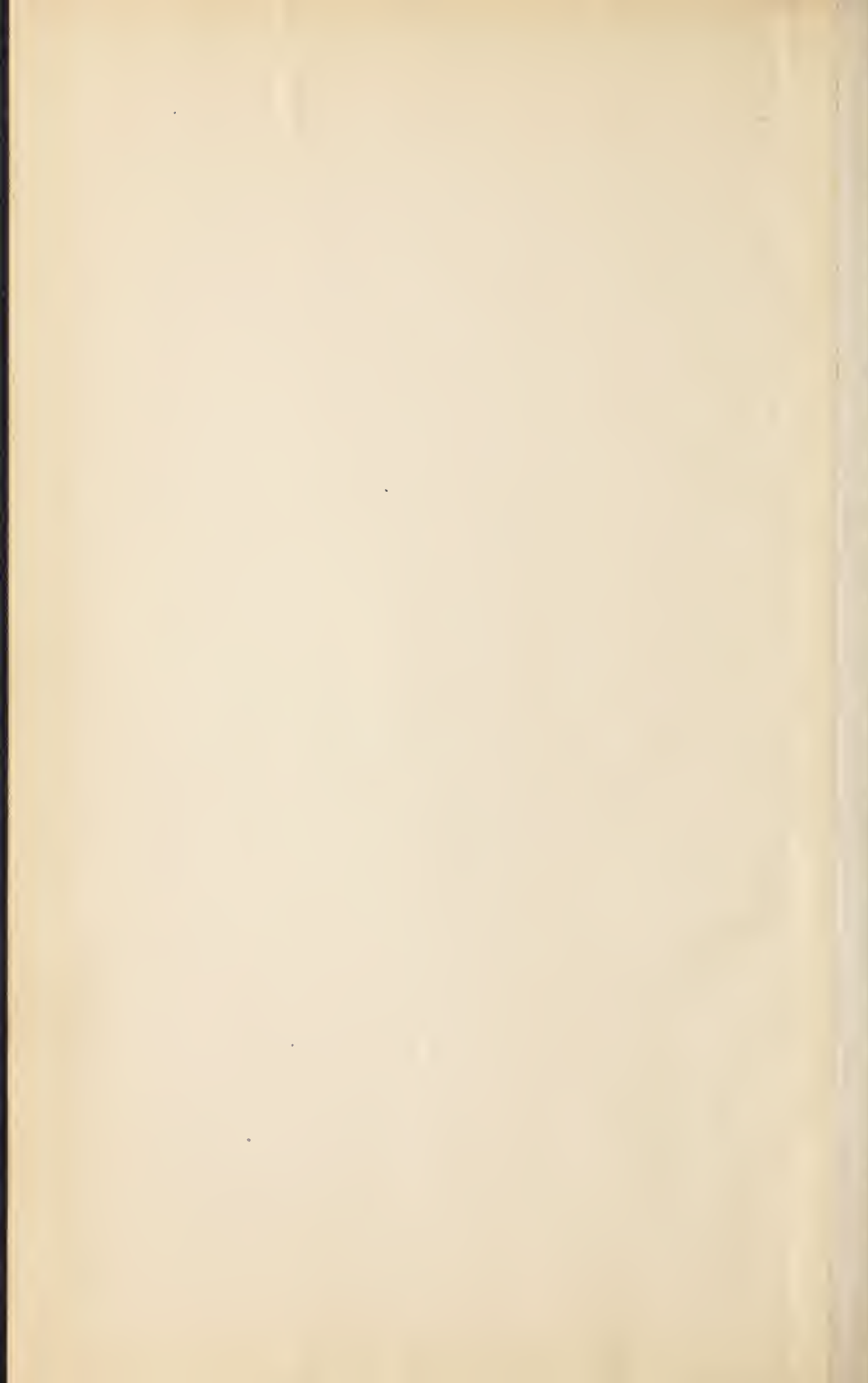
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THE
Brooklyn Medical Journal

PUBLISHED MONTHLY

BY THE

Medical Society of the County of Kings.

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VOLUME XV.

JANUARY-DECEMBER, 1901.

MEDICAL SOCIETY OF THE COUNTY OF KINGS,
Brooklyn, N. Y.



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THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

EDITOR IN CHIEF:

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VOL. XV. No. 1.
WHOLE No. 157.

} BROOKLYN, N. Y., JANUARY, 1901.

{ Single copies 25 cents
{ \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

THE GIFT OF THE WATSON COLLECTION TO THE LIBRARY OF THE SOCIETY.

At the stated meeting of the Society held October 16, 1900, the presentation of the Watson collection was made a special order of business; in connection therewith the Secretary read the following communication:

*The Medical Society of the County of Kings, Dr. L. S. Pilcher,
President:*

You are respectfully requested to accept as a gift to the library of the Society the medical works collected by the late Dr. B. A. Watson of Jersey City.

We deem ourselves fortunate in having secured this collection intact. The total number of titles is 5202, besides odd journals. It includes a rare assortment of antique medical classics, no less than seventy-five books antedating 1700.

There are also files of many serials, German, French, and English, complete from their initial publication to the date of Dr. Watson's death.

In making this presentation we beg to condition, first, that these works shall be used for the general purposes of the library, and shall not be diverted therefrom, except in the case of unneeded duplicates and the small number of non-medical works.

And second, that each book shall bear a suitably inscribed book-plate, to be furnished by the donors, which will identify it as belonging to the collection of Dr. Watson, and which will further serve as a justly merited testimonial to his zeal and devotion as a bibliophile.

We regard the installation of these volumes in the Library of our Society with heartfelt satisfaction.

We trust and believe that they will prove a stimulus to its greater development, and we place them in your keeping with perfect confidence that you will accord them every care and protection.

(Signed)

ELIAS HUDSON BARTLEY,
HERMANN A. BENDER,
WILLIAM BROWNING,
WM. F. DUDLEY,
HENRY ARNOLD FAIRBAIRN,
JACOB FUHS,
A. W. JUDD,
DAVID FLETCHER LUCAS,
GEORGE McNAUGHTON,
LEWIS S. PILCHER,
FRANK E. WEST,
WALTER C. WOOD.

THE WATSON COLLECTION—ITS INTRINSIC AND CLASSICAL VALUE.

BY WILLIAM BROWNING, LIBRARIAN.

A few of the facts regarding this gift are contained in the letter from the donors. It is by far the largest single accession that the Library has ever received. And it is not likely that such an increase will soon be paralleled, as some four-fifths of the five thousand odd titles are useful for our shelves, completing files, etc. Most collections of any such size would inevitably contain a much larger proportion of material that we already had. One reason for this is the foreign character of most of the works, a few choice medical Americana, however, being included. An additional feature of value is the fact that all the serial works were well bound, though in the various handlings to which they have been subjected the covers have become somewhat scratched. Even so

they will help to improve the appearance of our shelves, as a binding fund is sadly needed.

The collection is especially rich in valuable serials and sets of journals. In most cases these were complete to the time of Dr. Watson's death. Of these we may mention such as: *Guy's Hospital Reports* (I, II. and III. Series), *St. Bartholomew's Hospital Reports*, New Sydenham Society's publications (114 volumes), *The Edinburgh Medical Journal*, *Dublin Quarterly*, *Journal of the Medical Sciences*, *London Lancet*, Winslow's *Psychological Journal*, *Brain*, *The Medico-Chirurgical Transactions*, *Schmidt's Jahrbücher*, *Charité-Annalen*, and its predecessor, the *Annalen des Charité-Krankenhauses*, Pitha-Billroth's *Chirurgie*, *Deutsche Chirurgie*, *Zeitschrift für Chirurgie*, *Archiv für klinische Chirurgie*, *Centralblatt für Chirurgie*, *Archiv für physiologische Heilkunde*, *Monatsschrift f. Geburtskunde*, *Bulletins et memoirs de la Société de chirurgie de Paris*, *Annales de la Chirurgie* (15 volumes), *Revue des Sciences Médicales*, "Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques," *New Orleans Medical and Surgical Journal*, *Quarterly Compendium*, *Medical and Surgical Reporter*, *Cincinnati Lancet and Observer*, *St. Louis Medical and Surgical Journal*, *Nashville Journal of Medicine and Surgery*, *Journal of Cutaneous and Genito-Urinary Diseases*, *American Druggist*, *Iulix Medicus*, *Transactions and Journal of Am. Med. Assc.*, *Science*, "Wood's Library," *Annals of Surgery*, etc.

In addition to these are many odd volumes and part sets of journals. There is about an equal division, in number of volumes, between periodicals and other medical publications. Among the separate treatises are, of course, a great number on surgical subjects, amputations, fractures, orthopedics, history of surgery and medicine, and a goodly number of early monographs on hydrophobia.

Finally we come to another feature, the great number and choice copies of the medical classics. Of these may be mentioned a Spigelius of 1627, two editions of Galen (one of 1538 and one of 1562), a fine copy of "Liber pandectarum medicin., etc.," of Dr. Matheus Silvaticus, published in 1474 (but 19 years after the discovery of the art of printing); two volumes of Avicenna on "Arabum Medicorum Principis," 1545; Paulus Aegineta of 1534, Mangetus' "Bibliotheca Chirurgica," in 2 vols., 1721; Ambrose Paré, 1678; Trallianus, 1555; Forestus, 1653; Magnetus' "Theatrum anatomicum," 1716; "Fabritus" "Opera physica anatomica," 1625; Morgagni, 1741; Piccolhomini, 1586; "The Surgeon's

Mate," by John Woodall, 1655; Ambianus, 1566; Bartholomeus, 1559; Hippocrates of 1665; Aretæus, 1553; Ferrus, including "Fracastorius on Syphilis," 1554, etc., etc.

Of the many valuable sets of works we can only specify Dalton's "Atlas of Brain Sections," Haller's "Bibliographies," Pliny's "Natural History," in six volumes, Rust's "Chirurgie," in nineteen volumes, and Bentley and Trimen's four quartos on "Medical Plants."

From a library standpoint it is a matter of both pride and importance to have a well-stocked classical department. Though previously there was but little in the library, we can now feel that a good start has been made in this direction. In fact, if we could combine this with the one or more choice private possessions in Brooklyn it would constitute the peer of any collection in this country, short of that in the library of the Surgeon-General's office at Washington. Such rarities it is becoming increasingly difficult to secure.

It now becomes necessary to find ways for continuing these files. In a few cases this is already arranged for; but there still remain a large number of excellent medical periodicals that should be kept up and placed regularly at hand in the reading-room.

A SKETCH OF DR. WATSON.

BY LEWIS S. PILCHER, PRESIDENT.

It was my own privilege to be personally acquainted with Dr. Watson for many years. More than twenty years ago I first had my attention drawn to his interest in medical literature and became acquainted with the fact that he was accumulating a medical library of unusual character and of large proportions. At that time there were several private libraries of particular note in this country. Dr. Jenkins of Yonkers had just died, after having accumulated a library which has had but few equals and which a short time thereafter was dissipated, however, by a public auction sale, being scattered unto the four corners of the earth through that sale, and was lost as a collection.

Dr. Gilbert of Philadelphia had a remarkable collection of books, which, at his death a few years later, likewise was dispersed.

One of the most careful, enthusiastic, and erudite of book-collectors at that time was Dr. George Jackson Fisher of Sing Sing. Those who ever came in contact with Dr. Fisher would not fail to become inoculated with his own enthusiasm, and any one who ever had the opportunity of personally inspecting the collection of books which he gathered in his home at Sing Sing would be amazed and delighted. He is also dead. His collection of books, however, has been kept intact, and has been purchased by the Vassar Memorial Hospital at Poughkeepsie, where it now is.

The collection of Dr. Watson is the remaining one of the notable collections of that time. I may mention that immediately previous to the time of which I speak, the collection which had been made by Oliver Wendell Holmes had been presented by him to the Medical Library Association of Boston, and was the main nucleus of the great library which has since that time grown up under the fostering care of that association.

The library of Dr. Watson remained. Dr. Watson was a man who had his peculiarities; a delightful man to meet, however. He was tall, angular, a man of strongly-marked features and Lincolnian character in many respects. He had received no university training. His early education had been that in the district schools in the northern part of the State, followed by a term of instruction in the State Normal School in Albany, after which, taking up the study of medicine, he was graduated in the University Medical School of New York.

At the outbreak of the War of the Rebellion he entered the medical service in the United States Volunteers and remained in that service until the close of the war, being mustered out in the summer of 1865. When he had been freed from his obligations to military service he entered upon practise in Jersey City, where he at once took rank as a surgical authority, and there for many years, from that time until his death, he was accepted as the first surgeon of the city in which he lived. He dominated the surgical activities of that city. He was upon the surgical staff of three of the chief hospitals and was the directing surgeon of the Pennsylvania Railroad in the State of New Jersey. He was an active man, not only in the prosecution of his own individual work, but in all public affairs. He was interested in the development of the medical societies of his own State and in the general medical organizations of the country, being a highly esteemed member of the American Surgical Association, in connection with the work of which I myself first met him.

When he began to collect this library I do not know, but it must have been very early after his residence in Jersey City, for he was a man of wide literary culture and tastes, not only those which applied to medicine and surgery, but of a broader character as well. He was an author; an author who was known by his writings upon travel and those pertaining to sport, hunting, and fishing, as well as an author in the medical line. His chief work was a work upon "Amputations," a large octavo volume, which is a standard on the subject of which it treats.

Naturally, as a railroad surgeon, he was especially interested in the result of spinal concussion, and at the time immediately preceding his death he was carrying on a series of experiments for determining the effects of concussion upon the spinal cord. One of his methods of experimenting consisted in taking a dog at an elevation of some thirty or more feet, and then letting it drop upon a hard surface below, and then killing it, and seeing what the effect had been of this concussion upon the spinal cord. These experiments, however, I believe were not completed, and the results of his thought in the matter never were fully elaborated. I speak of this as showing the manner of man that he was. A man active in civic affairs, a man active in medical and surgical affairs, a man whose personality was felt wherever he was found, in whatever society or association he was placed; a man of general culture and taste; a self-made man; a man who was what he was simply because he was what he was, and not because he had been made such by any outside cultivation.

He accumulated by his knowledge and by his persistence and by his taste a remarkable library. He died in 1892. What became of this library the medical literary world for years did not know. Nothing was said about it and it had apparently been lost until within a very few weeks ago. This would have been a great loss, as those of you who will take the trouble to inspect the collection which is upstairs, and who will read the more detailed account of the collections and series of various kinds which are in this library, will realize—it would have been a great loss, but it has been recently brought to light, and through the tact and readiness of the librarian of this Society it has been secured for our own library. Those few gentlemen who were permitted to co-operate in its purchase have felt it was a privilege to do so, and as a result of their liberality this vast, and unusual, and select and valuable collection of books has been secured, and has now been presented to you and you are asked to receive it.

Dr. Day moved that the library be accepted.

Wm. Maddren: In seconding Dr. Day's motion, I think we all feel that the thanks of the Society should go to these gentlemen who have shown such an interest and enterprise in procuring this library. I have no doubt it will be of great benefit to the Society, not only in itself, but as an inducement to others to do likewise. and for one I feel very grateful to the gentlemen who have done this. I think that the Society, when they realize it, will universally feel grateful to them for it.

The President: It is moved and seconded that the Society receive this library, the donation of which is tendered by the communication which has been read, and that the thanks of the Society be tendered to the gentlemen who have donated it.

All who are in favor of the motion will please say "Aye."

The motion was unanimously adopted.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, November 20, 1900.

The President, L. S. Pilcher, in the Chair.

There were about 100 members present.

The minutes of the previous meeting were read and approved.

REPORT OF COUNCIL.

The Council reported favorably upon the name of Dr. Ernest Schalck, Wurtzberg, 1884.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by Council, were declared by the President elected to membership:

Charles P. Becker, L. I. C. H., 1896.

John Louis J. Gormley, L. I. C. H., 1897.

Joseph B. Kopf, N. Y. Univ., 1895.

Albert S. Nicholson, P. & S., Baltimore, 1881.

Wm. A. Fiske, L. I. C. H., 1893.

PROPOSITIONS FOR MEMBERSHIP.

Paul L. Parrish, 1448 Bedford avenue, Bellevue, 1898. Nominated by R. W. Westbrook; seconded by Chas. D. Napier.

P. J. Murry, Kingston avenue, Hospital, Bellevue, 1895. Nominated by C. B. Bacon; seconded by J. M. Winfield.

Fergus J. McDonough, 29 Poplar street, L. I. C. H., 1899. Nominated by C. R. Love; seconded by J. J. Lyons.

Charles E. Schofield, 152 Taylor street, P. & S., N. Y., 1899. Nominated by E. A. Wheeler; seconded by D. Myerle.

W. J. Lippelt, 311 Melrose street, L. I. C. H., 1896. Nominated by F. Weisbrod; seconded by D. Myerle.

Mark Gordon, 428 Watkins street, Baltimore Med. College, 1900. Nominated by H. P. de Forest; seconded by E. P. Hickok.

Harlow Erwin Dunton, 112 Second place, Univ. of Vermont, 1877. Nominated by H. P. de Forest; seconded by Sewall Mathe-son.

Julius Pandolpho, 529 Metropolitan avenue, Univ. of Naples, 1890. Nominated by H. P. de Forest; seconded by J. P. Warbasse.

Elias Peter Hicks, 940 Flatbush avenue, Univ. of Vermont, 1898. Nominated by H. P. de Forest; seconded by W. G. Reynolds.

SCIENTIFIC BUSINESS.

1. "The Physiology of the Mammalian Liver." By Dr. John C. Cardwell.

2. "The Bio-chemical Pathology of the Liver." By Dr. Henry A. Bunker.

3. "The Differential Diagnosis of the More Common Diseases of the Liver." By Dr. Glentworth R. Butler.

4. "Remarks on the Treatment of the More Common Diseases of the Liver." By Dr. Jacob Fuhs.

Discussion by Dr. F. E. West and Dr. J. A. McCorkle.

MISCELLANEOUS BUSINESS.

Report of the Building Committee.—Dr. Maddren, Chairman, presented the report of this Committee, which on motion was accepted.

Dr. Maddren moved:

That the report of the Building Committee and the report of

the proceedings of the turning over of the building, together with such other matters pertaining thereto as the Council or Editorial Committee may deem best, be published in a special number of the *BROOKLYN MEDICAL JOURNAL* for general distribution.

This motion was seconded and carried.

The President called attention to the announcement that arrangements had been made for a lantern demonstration in "The Pathology of the Genito-Urinary System," to be given by Drs. Van Cott, Wilson, and Murray, in the section-room of the Society's building, for one hour of the evening of Monday, December 18th, beginning at 9 o'clock, and stated that this was intended not only for the profession generally, but also as an introduction to the special matter which will be the subject of discussion at the next meeting of the Society, namely: "Tuberculosis of the Genito-Urinary System."

The President also called attention to the fact that at the next meeting nominations of officers for the ensuing year and twenty-one delegates to the State Medical Society, were to be made.

On motion adjourned.

DAVID MYERLE,
Secretary.

STATED MEETING, DECEMBER 18, 1900. ..

At this meeting the following nominations were made for the year 1901:

President—L. S. Pilcher, W. Browning.

Vice-President—H. A. Fairbairn.

Secretary: D. Myerle.

Associate Secretary—W. S. Hubbard.

Treasurer—O. A. Gordon.

Associate Treasurer—J. R. Stivers.

Librarian—J. M. Winfield, H. N. Hoople, W. Browning.

Trustee—G. R. Fowler, C. F. Barber, C. N. Cox.

Censors (5)—J. P. Warbasse, F. S. Kennedy, W. F. Campbell, J. E. Sheppard, R. J. Morrison, J. M. Van Cott, V. A. Robertson, A. C. Brush, H. B. Delatour, W. C. Wood.

Delegates to the Medical Society of the State of New York (21)—F. W. Shaw, W. A. Sherwood, T. B. Spence, P. H. Sturgis, A. H. Bogart, A. Murray, H. G. Webster, C. H. Goodrich, E. L.

Oatman, W. G. Reynolds, W. F. Dudley, W. L. Rickard, C. B. Bacon, J. R. Stivers, J. C. Hancock, E. E. Cornwall, C. C. Henry, G. W. Colby, W. N. Belcher, A. C. Howe, C. R. Hyde, H. N. Hoople, R. H. Pomeroy, W. S. Shattuck, Jr., O. A. Gordon, T. C. Craig, R. Clark, M. Figueira, H. E. Fraser.

THE BROOKLYN SURGICAL SOCIETY.

JAMES P. WARBASSE, M.D., EDITOR.

Regular Meeting, March 1, 1900.

(Concluded from p. 882, Vol. XIV.)

EXTRAPERITONEAL RUPTURE OF THE BLADDER.

DR. A. T. BRISTOW reported a case of extreme rarity. He said that in the *Annals of Surgery* of February, 1898, Mitchell of Johns Hopkins Hospital reported a case of extraperitoneal rupture of the bladder complicated by fracture of the pelvis, and at the same time collated ninety cases of extraperitoneal rupture of the bladder. Of those ninety cases, all but three were accompanied by fractures of the pelvis, so that as a matter of fact extraperitoneal rupture of the bladder occurs as a rule in cases in which the rupture has been produced by broken fragments of the pelvis which have been driven inward. It is rarely that they are not produced in that manner.

Dr. Bristow proceeded to report the case of a woman, aged 24, who on the 26th of November fell down stairs and struck her abdomen on the corner of an ice-chest. Forty-eight hours afterward she came into his service in the Long Island College Hospital. She said that she had passed no urine since the accident, but was tormented with a constant desire to urinate. On examination the reporter found that there was a bruise on the abdomen a little above and to the left of the symphysis pubis. The abdomen was not much distended, moderately tender, and with some muscular spasm. The temperature was 100°. There were no signs of peritonitis. The house surgeon reported that he had drawn by catheter two ounces of urine. The patient stated that she had not passed water for a few hours previous to the acci-

dent. Dr. Bristow introduced into the bladder six ounces of sterile salt solution, and recovered the same amount. He had ordered the patient prepared for a laparotomy, but this caused him to decide to wait until morning. An examination of the urine recovered by catheter failed to show the presence of albumen, nor did the patient seem uremic. If, then, the morning showed an absence of urine in the bladder or the presence of but a few ounces, he had determined to operate. It was evident that if the bladder contained no urine or a constant and small quantity there was certainly a rupture of the bladder, for injury to the kidneys, or suppression, or any other cause could with certainty be excluded. On the following morning the condition of the patient was the same, and the house surgeon reported that he had been able to get two ounces of urine through the catheter. Dr. Bristow opened the abdomen in the median line, and rapidly passing stick sponges into each flank brought them out quite dry. There was therefore no intraperitoneal rupture to be dealt with, and he closed the peritoneum and began an investigation of the anterior wall of the bladder. As he worked down in that direction he came upon a collection of ammoniacal urine which had dissected its way on each side between the peritoneum and the pelvic fascia. This was thoroughly washed out with salt solution, and a search begun for the wound in the bladder. Urine kept welling up from the depths of the wound, and to get better access to the anterior wall of the bladder he made the Trendelenberg transverse incision and separated the recti partly from their pubic attachments. In this manner he gained an excellent exposure of the parts. After the introduction of a catheter into the urethra, air was pumped into the bladder, and he was immediately able to trace the mischief to its source by the bubbles. He found a rent in the juncture of the anterior walls of the bladder about three inches long and extending almost down to the neck. The edges of the tear were much bruised and ecchymotic, and he found the rent a difficult one to suture. At the same time, when he had injected water into the bladder, the fascia had slid over the wound and made it temporarily water tight, so that there was no escape of fluid into the surrounding cellular space. This can happen only in the extraperitoneal tears, he said, and never in those which are intraperitoneal. With much difficulty he succeeded in stitching the rent with chromic catgut. Ample drains were then introduced and carried on each side as far as the extravasated urine had penetrated. The perpendicular cut was su-

tured, but the transverse left entirely open. The patient was then sent back to the ward, and a catheter, to which a Dawbarn suction-drain was attached, was left in the bladder. For several days there was no leakage, and he took the apparatus away; but after an interval of twenty-four hours urine appeared in the gauze dressings. No bad symptoms intervened, and the patient made an excellent recovery.

The speaker said that there are one or two notable things in this case: first, the age of the patient. She was only 24. These accidents happen as a rule in older persons and in cases that have bad tissues because of long-continued bad habits. In the series of ninety cases reported in the February (1898) number of the *Annals of Surgery* but three of these cases occurred where no fracture of the pelvic bones was reported; and the percentage of mortality in the cases operated on after an interval of forty-eight hours had elapsed was 100. In one case a similar accident had caused the injury, a man jumping on the abdomen of the injured person. The other two cases probably did have fractures of the pelvis, although these are not mentioned. In one case a man was crushed under a heavy casting; in the other, a pile of bricks fell on the patient. This latter patient recovered. The proper treatment of these cases, Dr. Bristow said, rests on a prompt diagnosis; and in cases in which a fracture of the pelvis exists there will not be much difficulty in coming to a prompt conclusion. In his own case, the second that had come under his notice, he was prepared to operate upon the reception of the patient, but was misled by the fact that all the solution put into the bladder was returned. It is evident, therefore, that a rupture of the bladder may exist which may not be discovered if too much confidence is placed on the negative evidence of the returned fluid. This caused a delay of twelve hours in his case. Whether this error might have been avoided is a debatable question. The patient did not seem to be in a critical condition. There was no vomiting, no peritonitis, and he had only the patient's statement that she had passed no urine since the accident. Therefore, he judged it safest to wait until the morning. An excellent evidence of rupture of the bladder in these cases is the withdrawal of a constant small quantity of urine, which may be explained in this way. The bladder fills up to the point of rupture, whereupon overflow takes place into the surrounding tissues or peritoneum. Thus the quantity which a catheter obtains from such a bladder will be small and constant unless the catheter penetrates through

the wound into the cavity occupied by the urine, when of course a large amount may escape. A number of these cases of extra-peritoneal rupture of the bladder has been kept immersed in a bath and so kept for days. Mitchell's cases were so treated and recovered. The perfect drainage that Dr. Bristow was able to secure through Dawbarn's apparatus after suture rendered this unnecessary; and after leakage did occur granulation tissue had sprung up and prevented absorption.

Discussion.

DR. M. FIGUEIRA said that he had not regarded cases of extra-peritoneal rupture of the bladder as being so very rare. He had seen two of them in his own practice. One of them took place while he was house surgeon in Bellevue Hospital in the service of Prof. Sands. The patient had been digging in a trench, and a mass of dirt fell on him. He was brought into the hospital suffering from retention of urine. Dr. Sands could only get blood out of the bladder. The diagnosis of rupture was not made, and the next day the patient was seen by Prof. Gouley, who made the diagnosis of extraperitoneal rupture of the bladder. One of the symptoms that led to diagnosis, and one that is of a great deal of importance in these cases, was the tenderness above the pubes and along the recti muscles, for when the extravasation takes place the urine finds its way upwards along the plains of the abdominal connective tissue. Another symptom that is early in these cases, he said, is the blush that appears over the lower part of the abdomen, caused by the commencing cellulitis. This was noticeable, and was pointed out by Prof. Gouley in this case. This man died. He had a fracture of the pelvic bones. One of the rami of the pubes was fractured and the bladder ruptured on the anterior aspect. Of course, the size of the rupture makes a difference in relation to finding water in the bladder. A large rupture will allow all the water that is contained in the organ to escape, the contraction of the bladder forcing it into the cellular tissue.

The other case was in St. Catherine's Hospital about a year ago. In that case the patient had been caught between two cars, which he was coupling in a railroad station. He had fracture of the pelvic bones and separation of the bones at the symphysis. It was one of the cases in which the rupture was small, and some water could be withdrawn from the bladder. The condition was

not recognized until a large abscess formed anterior to the pubic bones. He was brought to the hospital and put on the table, and to the speaker's astonishment, when he cut down he found the pubic bones separated about an inch and urine coming away with the pus. That man died from septic infection.

DR. BRISTOW added that he did not wish to be understood as saying that cases of extraperitoneal rupture of the bladder were rare, although he thought them relatively rare. What he meant to say was that extraperitoneal rupture of the bladder, not complicated with fracture of the pelvis, was rare.

CONGENITAL TORTICOLLIS.

DR. ARTHUR H. BOGART reported the case of a child 11 years of age, which had been delivered with forceps after a prolonged and difficult labor. There was a mark of the forceps on the forehead just posterior to the temporo-frontal articulation. With the above history and the fact that the conditions had existed since birth, he thought that the forceps might be held responsible for the torticollis.

When the patient came under his observation, examination revealed a marked torticollis, the head being turned to the left at an angle of twenty-two and a half degrees from the median line. The right sternomastoid muscle was short and rigid, the left one was relaxed. The right side of the head and face was more fully developed than the left. There was also a slight curvature of the dorsal spine.

A one-inch oblique incision was made over the lower portion of the right sternomastoid muscle, muscle isolated and completely divided, allowing the head to be immediately placed in an overcorrected position. Subcuticular suture of the silk was applied. The head was then placed in an overcorrected position and held there by a plaster-of-Paris bandage.

Six days after the operation the first dressing was made and the wound found in excellent condition; a plaster-of-Paris dressing was again applied as before. Six days later this dressing was removed. A capeline bandage of plaster, including a buckle situated just over the mastoid process of the left side, was applied to the head, and a plaster-of-Paris belt applied to the chest, in which was incorporated a second buckle just anterior to the right axilla. A strap was then passed from one buckle to another, and when drawn tightly served to hold the head in the proper

position. This appliance was worn for about six weeks. At the end of that time, there being no tendency toward recurrence, it was removed and the case discharged, to report once a month for observation. There has been no evidence of recurrence since the dressing was removed. The accompanying photographs show the dressing above described, also the case after operation, with the correcting strap removed.

CATARRHAL APPENDICITIS.

DR. H. L. COCHRAN presented a vermiform appendix. The patient from whom it had been removed was a woman, 40 years of age. She had a history of four attacks of appendicitis within the past two years. At each attack two different surgeons had advised operation, but she had put off the operation and the attack had subsided. She had repeated attacks. The speaker saw her on the first of January with another. This attack appeared to subside and she refused to be operated on. He attended her for about two weeks, when the pains had almost entirely disappeared, and the rigidity in the recti muscles and tenderness over the appendix had disappeared. He advised her to keep quiet for a time, and left her with the understanding that in a short time she would have the appendix removed. About three days later he was sent for in great haste. He found that she had been to Manhattan that day and spent the afternoon, had been climbing elevated stairs, and so on, and came home with pain over the appendix. There was some rigidity of the rectus muscle. It was late in the afternoon, and the speaker gave her a little morphia, as she would not go to the hospital that evening. He saw her the next morning early, and the symptoms had not improved. The next afternoon he operated and found the appendix lying posteriorly. He had a good deal of difficulty in bringing it into view, but finally, by turning out the intestine into the wound, he found the appendix was completely encysted. It had to be entirely dissected from the intestine. He found the cavity filled with seropurulent material. Gauze drainage was applied and the woman made a complete recovery. He considered it a case of catarrhal appendicitis.

THE ELEVATED HEAD POSITION IN THE TREATMENT OF DIFFUSE SEPTIC PERITONITIS.

DR. GEORGE R. FOWLER read a paper upon "The Elevated Head

and Trunk Posture to Facilitate Drainage into the Pelvis in the Treatment of Diffuse Septic Peritonitis," in which he called attention to the well known comparative insusceptibility of the pelvic peritoneum to infecting agents, the fact that septic processes are not so readily diffused from this region as in the case of other portions of the peritoneal cavity, and that the products of septic inflammatory conditions in the pelvis do not give rise to the grave constitutional symptoms characteristic of equally extensive septic inflammation in the peritoneal cavity above the pelvis, the two last being due to the non-absorptive character of the pelvic peritoneum.

Owing to the exceedingly favorable course followed by a case of diffuse septic peritonitis in which the elevated head and trunk position was prescribed by his assistant, Dr. R. S. Fowler, to prevent vomiting and facilitate peristalsis, Dr. Fowler began a series of observations in order to test the efficiency of this measure combined with free drainage in the treatment of diffuse septic peritonitis, with the result that seven consecutive cases, all but one of which originated in bacterial infection from the intestinal canal, so treated, ended in recovery. The seventh case had its origin in a ruptured ovarian cystoma with heavy chocolate-colored fluid contents. Bacteriological examination of cultures taken from remote portions of the peritoneal cavity was made in three of these recovered cases. Two showed the presence of staphylococcus infection; the third revealed both staphylococcus and streptococcus, the latter predominating.

A study of the seven consecutive cases previously treated in Dr. Fowler's hospital services, excluding two which died within twenty-four hours of the operation and in which no measures of after-treatment could have been expected to avail, gave a mortality of four out of the seven. A further study, including a large number of cases in which the same measures of treatment were followed with the exception of the elevated head and trunk posture, from which group were likewise excluded those dying within twenty-four hours, showed that the most favorable results obtainable gave a mortality close on to 50 per cent.

Cases of so-called "spreading peritonitis," in which decided redness of the serous covering of the coils of intestine in the neighborhood of a focus of infection are not included in the cases reported. A number of these was also treated in this manner, with the result of a rapid and comfortable convalescence, the latter mainly through the absence of vomiting following the opera-

tion and the free and frequent passage of flatus with consequent absence of distention.

Attention was also called to a class of cases, occasionally encountered, in which there is present large quantities of opaque milky material consisting of desquamated endothelial cells, leucocytes and other cell-forms floating about in a copiously transuded peritoneal fluid in the peritoneal cavity, unaccompanied by any of the usual evidences of peritonitis, the patient's recovery following. None of these, however, were included in the cases of recovery herewith reported.

Attention was called to the so-called Clark's postural treatment of diffuse septic peritonitis (elevation of the foot of the bed), and some of the anatomic and physiologic fallacies connected therewith.

In Dr. Fowler's postural method the head of the bed is raised from twelve to fifteen inches from the horizontal plane, the patient being prevented from sliding down in the bed by a large pillow folded and placed beneath the flexed knees and against the buttocks. The pillow is prevented from sliding by a piece of stout bandage passed through the folded portion and its ends secured to the bedstead.

Discussion.

DR. M. FIGUEIRA said that he was glad that Dr. Fowler relies in the treatment of diffuse septic peritonitis on drainage of the peritoneal cavity. Some time ago a paper was read here on this subject, and the speaker was the subject of adverse criticism on the part of several gentlemen because he advocated drainage as of great value in septic peritonitis, a view that Dr. Fowler has so ably maintained to-night, and a view which these cases so fully justify, a view maintained by some of the leading men in this country and abroad. In regard to the posture part of the treatment, though he could not explain why it acts so favorably, it is a fact that a group of seven cases of diffuse pelvic peritonitis successfully treated, speak well for the treatment. Of course, in cases of this kind, he said, it is only by further experience and a large number of cases, that one can decide, and if further experience will confirm the view that Dr. Fowler has advanced, we must certainly congratulate him upon making a step in advance in the treatment and cure of a disease that in the speaker's experience is one of the most fatal of diseases.

DR. A. T. BRISTOW said that Dr. Fowler has already anticipated the natural criticism which would be made on a paper of this sort, that the method is opposed to all physiological principles and all known histology. Robinson, some two or three years ago, published a very exhaustive paper on drainage of the peritoneum, in which he showed, or sought to show, that all the lymphatics which exert actual drainage are situated in the diaphragm; and Clarke's principle of drainage was based on that fact. However, until we have a much larger experience there is no use of disputing the force of the figures, and if subsequent figures corroborate the seven cases mentioned by Dr. Fowler, it is no use for us to talk of physiology; we shall simply have to agree that the upright position is the best position for drainage.

In regard to the statement that the pelvic peritoneum is more tolerant of inflammation than other portions of the peritoneum, the speaker was of the opinion that this is hardly based on fact. As a matter of fact, one reason why pelvic inflammations do not spread is because they are in a secluded portion of the peritoneum, where the intestinal folds are less complicated. Then, again, in those cases of peritonitis which occur in women, we have the pelvic cavity divided into two portions by the broad ligament, which may exercise a limiting action in the inflammation. Dr. Bristow believed that the tolerance of the pelvic peritoneum is not due to any special difference in the peritoneum. He had never heard there was any difference between the epithelial covering which constitutes the peritoneum in the pelvis and that which makes up the peritoneal covering anywhere else, nor did he think there is any difference. He said that one reason inflammations in the pelvis do not spread is because of gravity, for while purulent fluids will travel downward, they do not readily find their way upward against gravity. He had had a good many successes in cases of diffuse peritonitis where there was fluid, by simply thoroughly washing out the peritoneum and sewing up the abdomen without any drainage, and that has been done by many other surgeons, and surgeons of equal repute with those quoted by his friend, Dr. Figueira. He believed that he was quoting the gynecological service of Johns Hopkins Hospital correctly when he stated that they are abandoning drainage in most of their cases, and they find the cases that are not drained do better than those that are drained. As a matter of fact, the speaker thought that we could not treat any case of peritonitis by hard and fast rules, because all cases differ. In the adhesive forms of peri-

tonitis with localized foci of suppuration it would be manifestly unwise to treat cases without drainage; and yet at the same time there are frequently cases in which there has been a diffuse peritonitis with a great deal of fluid in the abdomen, in which the intestines have not become adherent, which will, in his judgment, do better with a thorough washing out and cleansing of the peritoneum with gallons of fluid and the subsequent closure of the peritoneum than after any other method of treatment. He had not been convinced that glass drains do not form for themselves tunnels, which is one of the objections, in his mind, to which all drains passed into peritoneal surfaces are open.

With regard to eventration in the treatment of general peritonitis he had a very poor opinion of it. He said that a man who does eventration, scrubs the intestines, and gets his patient off the table alive is a lucky man. He had seen it tried many times, but had never seen anything but death follow. He said that it is not the evaporation or loss of heat which constitutes the shock in these cases of eventration. We are injuring the sympathetic system; and the more we handle the intestines the greater the shock. He believed that we should save very few patients if we adopt this plan, and that the plans of treatment which take into consideration the vital resistance of the patient will be more successful than those plans which involve so extensive an operation as eventration, with scrubbing of the inflamed peritoneal surfaces and the removal of the lymph.

DR. THOMAS B. SPENCE said that it would seem that by most of the methods followed in the treatment of general septic peritonitis there is a gain in the number of recoveries. It would seem too, that we have not come any nearer to any one method of treatment of septic peritonitis than we were a few years ago. He remembered very distinctly, less than four years ago, reporting a recovery after operation in one of these cases. He said that one of the older members of this Society got up and congratulated him and remarked that he probably would be in the practise of surgery many years before he saw another such case. We hear reports of numbers of cases now, without any such comment. He could report a number himself. There has been a gain in our results and we have not followed in any one line of treatment. Drainage is used or it is not used, and nevertheless we get better results than we got five or six years ago. The general technic of the operating-room, he thought, is perhaps responsible for that increase in good results.

DR. J. B. BOGART suggested that it is possible that we are now getting these cases earlier than we used to. Physicians are beginning to recognize that these are surgical cases and are giving the surgeon an earlier opportunity.

Nothing succeeds like success, and facts are stubborn things. He said that while we might not all agree with Dr. Fowler in his reasoning as to why he has secured these results, we are all of us impressed with the results themselves, and the contrast which he has shown with his previous series of cases. It seemed to him that Dr. Bristow's remarks in regard to the reasons why sepsis does not spread from the pelvis were well taken, and they also explain why we should not expect that by simply elevating the foot of the bed the pelvis would be emptied and the contents absorbed by the diaphragm. As the speaker understood it, Clarke's method does not anticipate any such result. The pelvis is a basin and the intestines act as a cover for it. It is different in the upper portion of the abdomen. The intestines there form barriers, and interfere with drainage. He thought that he was right in saying that of the cases reported by Dr. Fowler, all those in which there was much plastic inflammation, so that the coils of intestine were closely adherent and the pus was contained in cavities, died, but in those cases in which the fluid was free the best results were had. This he thought was the general experience. It seemed to him that the process of cleansing the abdomen of this very fluid, whether we wipe it away or wash it away, getting rid of the bulk of the infection, and then closing the peritoneum puts the patient under the most favorable circumstances for recovery.

DR. G. R. FOWLER continued the discussion by saying that in the matter of Dr. Bristow's suggestion that the broad ligament itself forms a diaphragm or partition, as it were, dividing the pelvis into two portions, can have but very little weight upon the main contention presented, namely, that the pelvic peritoneum involved in a large area gives rise to symptoms locally entirely disproportionate to the general symptoms; in other words, that the amount of peritoneum involved in the two cases would, in the case of the pelvic peritoneum, give rise to comparatively few general symptoms, while in the case of the general peritoneum an equal amount of peritoneal invasion would give rise to most pronounced symptoms. In the case of the broad ligament, with its double folds of peritoneum, the area of peritoneal involvement is manifestly greater than it would be in the absence of this

structure. Next, those of us who open the peritoneal cavity for conditions necessitating operative work in the pelvis will recall the fact that the broad ligament does not stand out as a broad partition or diaphragm dividing the pelvis in two, but that it sinks to the most dependent portion of the pelvis; its outline can scarcely be made out until after the surgeon has passed deep in the pelvis and the finger runs along over the attachments of the Fallopian tube to the uterus, the ovary identified and the broad ligament brought up into view, sometimes even with difficulty, so that while in the upright position there may be more or less of this partition effect of the broad ligament, in the recumbent position, as patients are usually placed when ill from any condition which gives rise to diffuse septic peritonitis, this condition does not occur.

As to the fact that pelvic peritoneum is not so susceptible to infection, he thought that among physicians in general, and those particularly who attend cases of pelvic infection following attempts at abortion, as well as those engaged in obstetric practice, would agree with him that the pelvic peritoneum is not so frequently involved as a result of infection of the uterus as one would be led to suppose, when one considers the fact that there is a direct route between the uterine cavity and the peritoneum through the Fallopian tube, a condition which under circumstances of infection of the uterine cavity, would be more than likely to favor infection.

As to glass drains, he said that here again the remarks of Virchow may be quoted, because experience with the use of glass drains shows that the drains do drain. In some instances two drams or half an ounce or even larger quantities are removed from the glass drains at intervals of from four to six hours for several days after the placing of the drain in position. In addition to this the strip of gauze placed in the drain for capillary drainage is more or less constantly wet, and the dressings which encompass the mouth of the drains, separately from the rest of the wound, are more or less wet all the time. This is borne out by experience in cases in which the method of thorough irrigation has been employed. In one case in his hospital service his assistant, Dr. Russell S. Fowler, introduced this method of flushing into one drain and out of another; and as long as this was continued the fluid passed from one drainage-tube to another. A similar experience occurred in which he put two drains at a distance from each other in the pelvic cavity as a secondary

measure. He admitted that the formation of plastic lymph about the small openings in the side of the drainage-tube block these openings, and prevents the fluid from passing into the drainage-tube after a certain length of time; and it is certainly true that a glass drain cannot be left indefinitely in the pelvic cavity or anywhere else where it is surrounded by peritoneal tissue, without finally becoming blocked. That this occurs before the drains have served their purpose does not necessarily follow. This criticism of the glass drain, therefore, does not hold good in the face of experience.

He further said that in his experience the anesthetizer not infrequently reminds him that the patient is losing ground, and that the pulse is becoming weak and feeble when the intestines have been laid on the abdominal wall for a certain length of time. This is due in a great measure to what is unavoidable in some cases; that is to say, strain on the root of the mesentery itself. He believed that unless care is taken to support the intestines and let them rest easily on the abdominal wall, or the surface of the body above, the strain upon the mesentery will induce decided circulatory disturbances; and these will continue to a greater or less extent after the intestines have been replaced. He had observed that whenever a mahogany or copper color of the intestines obtains, whatever treatment is instituted in septic peritonitis, he had never known such a case to recover. He believed when this color is presented that the conditions are entirely incompatible with the recovery of the function of the muscular and circulatory apparatus of the intestine, and hence with the recovery of the patient.

There is no question but that, as a rule, cases of abdominal lesions come under the surgeon's care earlier than in the past; yet he was reminded of the fact that in the more remote portions of the country, and of the city as well, these cases still come to us occasionally too late for the surgeon to be of any service. The speaker said that the gentlemen who have sufficient confidence in him to send him these cases are those with whom he came in frequent contact, and whom he insisted should be present at the operation whenever possible, in order that the conditions present might be pointed out to them. From viewing the disastrous consequences of allowing patients to go too long without operative interference, these are impressed with the importance of early operation. As a result only three cases of diffuse septic peritonitis in the past four months had come to him from physicians

for whom he was in the habit of operating; but within a period of less than nine weeks four cases of this character had come to him from gentlemen for whom he had never operated before. Where physicians are impressed with the necessities for early operative interference and have confidence in our views, and, above all, to whom we insist upon demonstrating the conditions present, there is a growing tendency, fortunately, to send the cases to us early.

The speaker wished to correct Dr. Bogart in the matter of the conditions present in the recovered cases. There were at least two of these cases which presented characteristic appearances of patches of lymph upon the intestine and these were among the recovered cases. It is entirely too soon with this method of treatment to determine what its value really is to be. If it were not for the two cases of indubitable staphylococcus infection demonstrated by the pathologist of the hospital, and the one case of indubitable streptococcus infection, these being among the cases recovered, he should not have ventured to present this group of cases to the Society. It would have been folly to advance on the basis of so few observations, unsupported by bacteriological evidence, any new method of treatment showing such startling series of results.

DR. J. B. BOGART said that he had not meant that the cases in which lymph was seen did not recover, but that he referred to cases in which the intestines were glued together and pus was found in collections, in abscesses in different parts of the abdomen. He had never seen such a case recover, and he understood that all Dr. Fowler mentioned of that character died.

DR. FOWLER added in closing that there was one case in which there was an abscess in the pelvis, which contained a pint; and one case in which there was an abscess behind the liver and another behind the spleen, each containing four ounces of pus, and in which the intestines were matted together and plastic lymph was present on the intestines. These cases were among those which recovered under the treatment which included elevated head and trunk posture.

THE BROOKLYN SURGICAL SOCIETY.

JAMES P. WAREASSE, M.D., *Editor*.

Regular Meeting, April 5, 1900.

The President, Dr. Walter C. Wood, in the Chair.

FRACTURE OF THE SKULL WITH MASTOID ABSCESS.

DR. J. M. DOWNEY reported the case of a man, age 34, admitted to the service of Dr. Terry at St. Mary's Hospital, Dec. 7, with the history that on that day, while intoxicated, he had fallen down the stairs of a cellar. The ambulance surgeon found profuse hemorrhage from right ear, but no other evidence of injury. The patient was able to walk to the ambulance, but shortly afterward became violently delirious. On the following day delirium disappeared; the temperature was 99; pulse 95. The bleeding from the ear was serosanguinous in character.

The temperature remained between normal and 99 for a week, the discharge from the ear became less, so that four days after admission to the hospital it had disappeared. Up to this time the treatment had consisted of a dose of calomel followed by magnesium sulphate, irrigation of the ear every four hours with Thiersch solution, and packing with a clean piece of absorbent cotton.

On the fifth day facial paralysis was noticed on right side. On the morning of the eleventh day his temperature was $99\frac{3}{5}$, in the evening $103\frac{4}{5}$, and remained at 103 for two days.

Dr. Downey operated on him two weeks after the injury, making an incision over the mastoid, where he found a stellate fracture of the bone. He removed a small spicule, enlarged the opening with the trephine, found a small quantity of pus and blood-clot. This was washed out and the wound drained. Convalescence was uneventful. The paralysis improved, and the patient left the hospital one month after operation.

Discussion.

DR. C. H. TERRY said that this case was an extremely interesting one, as he had remembered it. It was an ordinary case

of fracture of the base with ordinary symptoms, and he had supposed for some time the man was getting along all right, but he got up a rise of temperature, and the discharge from the ear was checked for two or three days and then he became worse. The incision was made down on the mastoid process and pus was found there. It was his opinion that the operation without question was the means of saving the man's life.

DR. DOWNEY added that the paralysis cleared up very rapidly after the operation. The sense of taste had been lost previous to the operation, but about two weeks afterward that returned. There was no treatment for the paralysis outside of the operation.

SUPPURATIVE CHOLECYSTITIS—CHOLECYSTECTOMY.

DR. RUSSELL S. FOWLER presented a patient who had been admitted to the Brooklyn Hospital service of Dr. George Ryerson Fowler, July 24, 1898. He had had an infection by the Neisser coccus some few weeks before, which had finally attacked the joints. Two days before admission the pain left the parts of his body previously affected and settled in the region of the gall-bladder was curetted away and the mucous sewn to the peritoneum the day after his admission to the hospital. The lining mucous membrane was gangrenous, and about four ounces of pus were present. The man's condition was such that no prolonged operation could be performed. The lining mucous membrane of the gall-bladder was curetted away and the mucus sewn to the peritoneal incision. Drainage was kept up for three months by means of a silver tube especially made for the purpose. Finally this was removed and the resulting sinus closed rapidly. The patient remained well until March, 1899, when he developed symptoms of a return of his former trouble, cholecystitis. Dr. Fowler sent him to the Methodist Hospital and there removed his gall-bladder, which showed a partial regeneration of the lining membrane. The cystic duct was the seat of a stricture. No gall-stone was found at either operation. Three weeks later the patient left the hospital, cured, and has since remained well. It could be noticed that the entire right half of the abdomen was slightly more prominent than the left, a condition which was also to be noticed in Dr. Bristow's case of cholelithiasis presented at the last meeting. This is the result of the incision employed.

SARCOMA OF SHOULDER—INTRASCAPULOTHORACIC AMPUTATION.

DR. R. S. FOWLER presented a patient, 18 years of age, who

had enjoyed good health until seven months ago. Then he first experienced pain and stiffness in the left shoulder-joint. Soon after there was noticed a tumor, which grew until it became the size of a cocoanut. He was treated for a while for rheumatism. Finally he went to the German Hospital. The affection was evidently a sarcoma of the head of the humerus, outer end of the clavicle and neck of the scapula. On March 9, 1900, intra-scapulothoracic amputation was performed by Dr. George Ryerson Fowler, assisted by the reporter. The operation was speedily performed, and there was but slight shock. Two weeks after the operation there was an inflammatory nodule found. It was removed from the upper angle of the wound. Primary union resulted in almost the entirety of the wound. There is still some tenderness along the scar.

APPENDICITIS AND STREPTOCOCCUS PERITONITIS—ELEVATED HEAD
AND TRUNK POSTURE AFTER OPERATION.

DR. R. S. FOWLER presented a patient, 25 years of age, who had been admitted to the Brooklyn Hospital service of Dr. George Ryerson Fowler, October 31, 1899. The patient was referred by Dr. Kolle. When seen by the speaker forty minutes after his admission to the hospital, he gave the following history: Since childhood he had suffered from occasional attacks of so-called "inflammation of the bowels." These were accompanied by severe pain and it was necessary for him to remain in bed for an indefinite period with each attack. The last attack of the kind from which he suffered occurred in 1893. At that time he had what was called by the attending physician, "general peritonitis." His abdomen remained covered with ice for twenty-one days. The present attack began thirty-two hours before admission. The onset was sudden. The pain was acute and constant, with frequent colicky exacerbations, first located at the umbilicus. Subsequently the pain became general, but still was greatest about the umbilicus. There were frequent attacks of vomiting. Several grains of morphine had been administered in the last few hours preceding admission. He had not passed gas since the attack began. His facial expression was apathetic. The abdominal respiratory movements were absent. Distention was marked. There was exquisite general tenderness having its maximum below and to the right of the umbilicus. There was rigidity not only of both recti, but of the entire muscular ab-

dominal covers. The pain was general, most marked below and to the right of the umbilicus. Both thighs were strongly flexed. The left could be voluntarily extended with much pain, but the extension of the right gave exquisite agony. There was no tumor present. The temperature on admission was 102° F., pulse 105, respiration 32. When seen by the speaker for the first time, forty minutes later, the temperature had fallen to $101\frac{1}{2}^{\circ}$, the pulse had risen to 120, and the respiration remained the same. A diagnosis of diffuse peritonitis was made, the exciting lesion being an appendicitis. Immediate laparotomy, removal of the appendix, and removal of as much of the infection as possible was advocated as the only means of saving the patient's life. Operation, however, was refused until the man had communicated with his family. In the meantime an ice-coil was applied and everything was gotten ready for a laparotomy should consent be obtained. This was granted at seven o'clock on the morning of November 1st, and laparotomy performed forty hours after the manifestation of the first symptoms. There had been no particular change in his condition. The operation occupied fifty minutes. No medication was necessary during anesthesia. Eighteen ounces of ether were used. The abdominal cavity was entered at the edge of the right rectus through a four-inch incision. Immediately the peritoneum was nicked, there was a gush of a considerable quantity of seropurulent fluid the odor from which was plainly noticeable. The gut was much distended, and the peritoneum everywhere was reddened. On retracting the inner wound-edge the cecum bulged into the wound. This was pushed back with a laparotomy-sponge. Following this, free pus escaped into the wound from the region of the liver. This was sponged away. More pus then escaped from the pelvis and some from toward the left side. All this fluid was sponged away. The appendix was searched for in its usual location, but was not found. The caput coli was then drawn out of the wound, but no appendix was visible. On turning the colon over, a gangrenous spot was seen, the size of a ten-cent piece, on the outer and posterior wall of the cecum. This was found to be the top of the appendix. No other part of the appendix was visible. By palpation, the body of the appendix could be felt lying against the cecal wall and uncovered throughout its entire extent, except with this peritoneal covering of the cecal wall. The overlying peritoneum was reddened, but no more so than the peritoneum elsewhere. The peritoneum overlying the appendix was incised and the ap-

pendix was enucleated. This had to be accomplished very carefully and slowly, as the appendix was almost completely gangrenous. Several bleeding vessels on the cecal wall required ligature. The base of the appendix was finally reached. The appendix was raised and severed from the cecum by means of the thermo-cautery. The aperture left in the cecal wall was closed by a purse-string suture of catgut previously placed. A second purse-string suture was then placed to serve as an additional safeguard against leakage. The large raw surface on the cecal wall left by the removal of the appendix was covered in by two layers of continuous Lembert suture of catgut. The inner lip of the wound was elevated and a sterile swab carefully introduced into the left half of the abdomen at the level of the umbilicus. This swab touched nothing in transit and returned soaked in seropus. It was placed in its sterile test-tube and handed to the bacteriologist for examination. Dry stick sponges were plunged into the pelvis and other parts of the peritoneal cavity, care being taken not to injure the gut in any way. As soon as these returned dry, showing that the present infection had been removed, the drains were introduced. Eighteen drains were used in all. Each consisted of twenty strands of ordinary cotton string, such as is used in the manufacture of lamp-wicks. Each strand was strongly impregnated with iodoform. These drains are kept in dry jars ready for use. Three drains were placed so as to drain the site of the Lembert suture line in the cecum, three to drain the right hypochondrium, three the left hypochondrium, three the right pelvis, three the left pelvis, and three the left iliac fossa. The wound was closed in part by crossed silkworm gut suture and a subcuticular suture of linen thread. The drains emerged at the lower angle and were not pressed upon by the wound edges. They were moistened with borosalic solution. Copious gauze dressings were applied.

The patient was removed to his bed. Strychnin, gr. $\frac{1}{30}$, q. 4 h., was ordered to promote peristalsis. Calomel, gr. $\frac{1}{10}$ every hour by mouth. The head of the bed was ordered raised and kept raised until gas passed freely and distention decreased. An ice-coil was applied to stimulate peristalsis. Four drachms of hot peptonized milk, alternated with a like quantity of hot chicken broth, was ordered to be given every half hour as soon as the patient awoke from his anesthetic. Saline enemata were given. The speaker saw the case four hours after the operation. He was resting quietly with a temperature of 99° , a pulse of 100, and respira-

tion 24. A slight cough troubled him, for which gr. $\frac{1}{2}$ of codein was ordered every two hours p. r. n. The rigidity disappeared: the belly was soft but distended. There was no vomiting. In fact, subsequently the patient vomited but once and then the vomit consisted of the broth which he had taken a short time before. The temperature continued practically normal throughout. Gas was passed within twelve hours, and continued to pass freely thereafter. The dressing was done daily and the drains moistened. A large amount of fluid drained away during the first day, enough to soak the dressings and the bed, slightly less the second day, and much less the third day. Three drains were removed on the morning of the fourth day, three on the morning of the fifth day, and ten on the sixth day. There was no retention of discharge in case of any of the drains. The remaining two drains were removed on the seventh day. The head of the bed was lowered slightly on the fourth day, and on the fifth day the patient resumed the normal reclining position. In order to guard against thrombosis of the veins of the lower extremity from the position the limbs were frequently and gently massaged from the toes up to the groin. Frequent saline enemata were administered. Recovery was complete at the end of twenty-one days, with the exception of a ventral hernia. This has since been operated upon.

On further examination the appendix was found almost entirely gangrenous. At the proximal end there was an enterolith the size of the tip of the little finger. There was no meso-appendix. The organ derived its blood-supply from the cecal wall. It presented such a beautifully brilliant appearance that the reporter had it sketched in water-colors. Unfortunately, the artist was unable to copy it until some five hours after its removal, so that it lost some of its brilliancy of coloring.

In addition to the culture a smear preparation was made at the time of operation. Both showed mixed infection of streptococci and staphylococci. In the culture the former predominated.

Discussion.

DR. M. FIGUEIRA said that with regard to general peritonitis with infection and drainage, he would like to say a few words, not in regard to the case itself, but in relation to the discussion that took place here last session on Dr. Fowler's paper on this subject.

The first point is the importance of draining from the loins in these cases as well as from the pelvis. We know very well that pouches in the peritoneal cavity formed by the reflections of the peritoneum in the normal state, as the iliocecal pouch and the ilio-rectal pouch, but the two special pouches to which he would call attention are formed outside of the lower end of the kidney and the attachment of the colon. It has been demonstrated by experiments that if fluid is injected into the peritoneal cavity through the pelvis and these pouches are filled, when the fluid is drawn away from the peritoneal cavity, they remain full of fluid, showing that to get perfect drainage of the peritoneum we must drain also from the loin and the lower end of the kidney.

The other point is in regard to the so-called physiological absorption of fluid from the peritoneal cavity in a case of septic peritonitis. It has been claimed that the absorbent or lymphatic system of the peritoneal cavity runs up in the under surface of the diaphragm, and that in order to obtain perfect absorption, in place of elevating the patients, as Dr. Fowler proposes, we should invert them. Now, in the first place, the most recent investigations on this subject show that there is no such thing as an absorbent system of lymphatics in connection with the peritoneal cavity. Muscatello, the last one to investigate this subject, declares that the stomata described by some on the under surface of the diaphragm are nothing more than the altered epithelial cells themselves; that there is not any opening into the lymphatics, and that absorption from the peritoneal cavity is performed and carried on by the epithelial cells themselves. In connection with this, Dr. Figueira also called attention to the experiments of Delbet in relation to the absorption of fluids from the normal peritoneal cavity. He found fluids were absorbed from the normal peritoneal cavity in large amounts until the cells were saturated and soaked, and then the absorption would stop to such an extent that septic injections could be made into the peritoneal cavity without producing any poisonous action. Now, if we examine the condition of the peritoneum in septic inflammation we find destruction of the epithelial cells in many parts, in others the peritoneum is covered with patches of false membrane, and where the epithelium remains it is soaked and saturated with fluids that are constantly pouring from the inflamed membrane. Under such conditions we see clearly how futile and unreasonable it is to take into consideration the physiological absorption of fluids from the peritoneal cavity in septic inflammation as a means of drainage.

It is simply a question of mechanical gravity and the physiology and minute anatomy of the peritoneum have nothing to do with it under the circumstances. The bowels hang by the mesentery on the very edge of the pelvis, and the fluids which are between the folds of the mesentery and the intestines naturally drain into it by gravitation. By elevating the patient by mechanical means we help the drainage of the peritoneum, and if to this we add drainage through the loins we are doing the best and most sensible and most rational thing that can be done under the circumstances.

DR. A. T. BRISTOW said that within the last week he had had two cases of septic peritonitis from ruptured appendices, and both of these cases he had treated after the manner described by Dr. Fowler. The first case died in eight hours and the second in twenty-four hours. There is one objection to the position which occurs to him, and that is that the force of gravity is opposed to the circulation, so that it requires more effort for a laboring heart to supply the brain with blood than would be the case in recumbency. He had evidences of this in the second patient, who died of septicemia twenty-four hours after operation. In him syncope occurred as a result of the position, and the speaker was obliged to elevate the foot of the bed to bring him round. Temporary improvement occurred after the change in position, but he died a few hours afterward.

These two cases, of course, prove nothing. The first case came to him with a pulse of 160, a child of eleven years of age, who had been sick for a week, a diagnosis of intestinal obstruction having been made because of the constipation. Dr. Bristow operated to give him whatever chance he had, which was undoubtedly small. He died in a few hours. The other case was one of those hopeless cases of ruptured abscess—not ruptured appendix, but ruptured abscess. He had had appendicitis for about four or five days. The temperature had fallen to normal, when suddenly the abscess ruptured into the peritoneum, with the usual consequences. The speaker had washed out the abdomen thoroughly and put the patient in the position Dr. Fowler described, and drained with a number of drains. In this case there appeared to be no extension of the process as far as the peritoneum was concerned; but at the end of eighteen hours he commenced to have fecal vomiting, and died a few hours thereafter.

DR. RUSSELL S. FOWLER said that of course Dr. Bristow did

not mean to intimate that the result of his cases showed anything adverse to the mode of treatment. Evidently both were cases beyond the reach of operative interference.

ECHINOCOCCUS CYST OF THE LIVER—HEPATECTOMY.

DR. RUSSELL S. FOWLER reported the case of an Italian woman, married, twenty-eight years of age, who was referred to him by Drs. Accetta, Dissante and Vermeila, January 24, 1900. The patient spent the first twenty-five years of her life in Italy, coming to this country about three years ago. Since childhood she had suffered from frequent micturition, with at times the passage of large quantities of urine. One year before she was seen by the reporter she had had a miscarriage at three months; from which she suffered no after-effects. With these exceptions she had enjoyed perfect health up to within three months of the time when she was brought to him. At that time she had noticed a gradually increasing, dragging pain in the left side. Soon after she discovered a tumor in the region of the umbilicus. This was tender and movable. It did not increase in size, but the dragging pains, which were not constant at first, became almost continuous and much more severe. There was nothing in the history to guide in the establishing a diagnosis. The physical signs alone had to be depended upon. Bimanual examination disclosed that the tumor had absolutely no connection with the uterus or appendages. It could, however, be moved to any part of the abdominal cavity. Percussion revealed that the liver was of the normal size and normally situated. The colon could be traced throughout its entire course, the only peculiarity being that the transverse portion seemed a little higher than normal. There was no abnormal dulness in any part of the abdominal cavity. The spleen could not be made out. The right kidney was larger than normal and normally situated. The left kidney could not be palpated in any position of the body. The tumor was of the size of two fists. Over it lay the transverse colon. It was smooth in its lower part, elastic to the feel, in its upper part solid. It felt and acted like a floating cystic kidney. Malignant disease was ruled out, as there was no loss of weight or strength, as one would expect with a malignant tumor of such proportions. The tumor could not be traced to the liver in the neighborhood of the gall-bladder; in addition the tumor was not pear-shaped, nor had there been any symptoms of jaundice or gall-bladder disease. The

tumor did not perceptibly move with respiration. Moreover, the colon overlay the tumor. It was noted, however, that the colon moved with the tumor. The provisional diagnosis of floating cystic kidney was made. The diagnosis was founded on the following facts, the tumor did not move with respiration, it was of the size and shape of a cystic kidney, the colon was in front of it; it was freely movable to all parts of the abdominal cavity, and the left kidney could not be palpated in any position of the body. Nevertheless the speaker was doubtful of his diagnosis; and advised laparotomy so that in case the tumor should not be a kidney the operation need not be prolonged. Previous to his examination, another consultant had diagnosed the case as one of cystoma of the ovary. The case was admitted to the Brooklyn Hospital, service of Dr. George R. Fowler, January 26th, and operated upon by Dr. R. S. Fowler on January 27th. A four-inch median incision was carried through the abdominal wall, and the peritoneal cavity opened. The colon presented in the incision. This was pushed downward, exposing the tumor and also the left lobe of the liver. The case was plainly seen to be one of echinococcus cysts of the under surface of the left lobe of the liver, which, by its weight, had dragged the left lobe downward, causing the condition known as partial floating liver. The lower rounded portion of the cyst had become adherent to the anterior layer of the lesser omentum and had adhered to this and to the colon in such a manner as to cause the colon to overlie it. The cyst was separated from the colon and anterior layer of the lesser omentum, and was then easily delivered through the abdominal wound, which was enlarged for this purpose. The extent to which the cyst was attached to the liver was approximately six inches by two inches. The case was evidently a good one for hepatectomy. The liver substance was cut through with the thermocautery and the cyst removed entire without rupturing. There was only one point on the liver surface which bled rather profusely. That was in the neighborhood of the transverse fissure, probably one of the larger branches of the portal vein. A suture sufficed to arrest the hemorrhage from this point. The liver was gently replaced and a strip of iodoform gauze packed against the cauterized surface. It was noted that the liver was hyperemic and quite friable. The round ligament was then shortened and stitched to the abdominal wall with formic catgut, thus fixing the liver in its proper position. Gauze was packed between the liver and the diaphragm to produce adhesions and aid in the

support of the organ. The wound was closed, just enough room being left at the upper angle to allow the ends of the gauze strips to emerge. Half the packing was removed on the second day, the remainder one day later. The first few dressings were bile-stained, but this soon ceased. The patient was discharged from the hospital with a small sinus. This has since completely closed.

RESULT OF ARTHROTOMY FOR OLD DISLOCATION OF HUMERUS WITH
FRACTURE OF THE NECK.

DR. L. S. PILCHER presented a man, saying that cases of old dislocation of the shoulder are so interesting that, although so short a time ago he had presented one here before the Society, he would venture to present another one. This man, being caught in some machinery, was thrown violently to the floor, striking upon the point of his shoulder. The injury which he received was a crushing one, and was recognized as of great severity. The surgeons, who saw him immediately, reported later that at that time there was no question about there being, together with the dislocation that was evidently present, also a fracture of some kind, the exact nature of which was not well made out. His condition, both local and general, was such as caused his attendants to apply simply palliative measures until some weeks had elapsed. At the end of six weeks much of the local reaction had subsided and then his condition was one evidently of an unreduced forward dislocation of the humerus, the head being below and internal to the coracoid process. The possibility of some operative relief was entertained, and for that he came to the city—he was living in New Jersey—and entered the Methodist Episcopal Hospital.

When admitted to the hospital the head of the humerus could be felt below the coracoid, as already described. As long as the arm was held persistently in the adducted position, with the support of a sling or of his own hands, he was not suffering very much pain. At that time there was nothing to indicate the existence of a fracture. Whether at so long a period after the injury an attempt should be made to reduce the dislocation by manipulation, or whether at once the parts should be exposed by incision and the reposition of the displaced bone be effected by immediate manipulation through the wound, was to be decided. The reasons which were well brought out in the discussion before this Society some three months ago induced him to decide upon the open method, and accordingly an incision was made in front

of the shoulder extending in a somewhat curved line from the point of the junction of the deltoid and pectoralis major above the line of the clavicle outward and downward to the point of insertion of the pectoralis major muscle. Upon drawing aside the fibers of the deltoid muscle and exposing the field of injury, it was at once apparent that more injury than an ordinary dislocation had been sustained. The amount of thickening and contraction of the capsule of the joint was very great. Its relations to the neck and head of the humerus were entirely abnormal and there was a degree of thickening and distortion of the displaced portion of the bone that was to be explained only as the result of an injury which had been received to the bone itself at that point in addition to the dislocation which may have been sustained. The thickening, contraction, and the new relations of the tissues were such as made it apparent without question that any effort at manipulation would have resulted only in a failure to restore the head of the bone to its place. Upon further separating the tissues about the head of the bone and freeing it and turning it out, it was evident that there had been a fracture through the anatomical neck of the bone; that the fracture and dislocation evidently had been simultaneous, as the result of the direct violence that had been received. The bone had been thrown out of its socket on the anterior surface of the thorax and been crushed by the violence at the same time. The parts, in the time that had elapsed, had become consolidated, but with deformity. The head was rotated to an undetermined degree, and was partially displaced, so that a very marked deformity about the head of the bone existed, so much so that it was evident that, could it be possible to restore the head of the bone to its place, the deformity of rotation and angulation resulting from the mal-union were such as to interfere with the normal function of the joint and the position of the parts would be such as would make a very undesirable result. In addition to this, the thickening and contraction of the parts were such as made it evident that the head could be replaced in the glenoid cavity only after a very wide and extensive division of the soft tissues and the possibility of great functional disability resulting from such cutting of the parts about the joint was such as made it seem an unwise thing to do. For these two reasons his judgment was that in this particular case, the parts having been exposed, the thing to do was to remove the illy-united head of the bone and then replace the shaft of the bone in its relations to the glenoid cavity. That was accord-

ingly done. The head of the humerus was removed, the upper end of the shaft was replaced in relation to the glenoid cavity, and the parts sutured, the internal and deeper parts by buried sutures, and the external with superficial sutures, a small place for temporary gauze drainage being left at a point immediately over the upper end of the resected bone.

Progressive improvement has followed this operative interference, and now, at the end of three weeks from the operation, when he was presented, his wounds had healed, with a symmetrical shoulder and already a considerable degree of mobility in the parts.

[NOTE.—This man was seen by Dr. Pilcher again three months later. There had been a steady improvement in the range and strength of the movements of his shoulder, and at that date he could do everything except that which involved the use of the trapezius muscle, which still remained weak. This was evidently a direct result of the original injury.]

Discussion.

DR. W. C. WOOD said that attention should be called to the diagnosis in this case. He remembered an article published about three years ago in the *Annals of Surgery* by Dr. McBurney, in which attention was called to the great rarity of cases in which there was a fracture of the neck of the humerus and dislocation in addition, and at that time he presented a hook, formed somewhat on the basis of a longshoreman's hook, for aiding in the correction of the displacement. After drilling a hole in the upper fragment the hook was inserted into the hole and thus a purchase obtained. He stated there were six cases on record, and he had the seventh, of fracture and dislocation combined. The speaker thought the rarity of the diagnosis in this case was of equal interest with the successful treatment.

LACERATED WOUND OF THE PALATE.

DR. HENRY WALLACE presented a boy, eight years old, who, while playing on the street, fell, driving a tin whistle which he held in his mouth through his soft palate. Examination showed that the soft palate had been torn away from its attachment to the hard palate for about two-thirds of its extent, and hung in a festoon which rested on the base of the tongue. The torn edge

of the wound, especially at the point of impact of the foreign body, was ragged, and at one point a small piece of tissue had been gouged out. There had been considerable hemorrhage immediately after the accident, but it had ceased spontaneously. Dr. William F. Dudley of this city responded to his call for an anesthetist. The ether was administered in the recumbent position, and as near to an overhanging gas-bracket as was safe. A mouth-gag having been inserted, the ragged edges of the wound were trimmed and six small chromicized gut sutures were inserted. This procedure took about an hour. The difficulty was in getting sufficient light on the field of operation, it being night, and also in passing the sutures through the soft tissues overlying the hard palate, the soft palate having been torn away at its very connection with the hard palate. Perfect apposition, however, and perfect primary union were obtained. At the present time it is with difficulty that the full line of the wound is outlined.

The case was shown to demonstrate a very happy result obtained in a condition which, although apparently simple, is attended with much practical difficulty in restoration to the normal.

A CASE OF COMPOUND FRACTURE OF THE SKULL.

DR. HENRY WALLACE presented a boy, eleven years of age, who had been admitted to the service of Dr. A. T. Bristow at St. John's Hospital, August 1, 1899. While climbing on the elevated railroad structure he received an electric shock which threw him to the ground. He struck on the left side of the head, receiving a depressed fracture of the skull of the outer supra-orbital region. The patient was picked up in an unconscious state and brought to the hospital in the ambulance and prepared for immediate operation. Under the anesthetic it was found that the extent of the skull injury was much greater than was supposed on the examination made on first admission to the hospital. The wound was extended for about five inches in a large curve across the temporal and parietal regions for exploration. In addition to the depressed fragment over the outer angle of the eye, several lines of fissures and depressed fragments involving the temporal and parietal region to a remarkable degree, were discovered. The operative procedure consisted in removing the depressed piece of bone anteriorly, this was about the size of a cent, and repairing the damage to the dura mater by the introduction of a couple of fine catgut sutures. Every fissure of any depth was grooved by

the hammer and chisel for drainage. One large plate of bone which was very markedly depressed was raised by an elevator, and it looked as though the whole side of the patient's skull were being pried up.

The wound was drained posteriorly by strands of silkworm-gut and by a gauze drain inserted into the lacerated wound at site of the small piece of bone removed from the supra-orbital region, and the remainder of the wound closed by silkworm-gut sutures. The dressings were now applied and held firmly in place by a starch bandage. The recovery was uneventful. The drains were removed on the fourth day and the sutures a few days later. The temperature did not exceed $99\frac{1}{2}^{\circ}$, and within ten days it fell to normal and stayed so until the patient was discharged on the twenty-fourth day after admission. The boy had been in good health ever since, and was presented to the society at this meeting.

Discussion.

DR. W. C. WOOD said that it was interesting to note in this case the procedure followed out was contrary to the advice given at the Kings County Society meeting recently; as here was conservative surgery of the vault of the cranium, and it was of interest as a contrast to certain cases recently presented.

ACUTE HEPATITIS SIMULATING APPENDICITIS.

DR. HENRY WALLACE reported the case of a man, forty-three years of age, of good habits, and with a clear health record up to the attack which is here described. Four days previous to his coming under the speaker's care in the service of Dr. A. T. Bristow at St. John's Hospital, he was seized with a pain in the interscapular and epigastric region, which lasted for one day. For the next two days he was free of pain. He had entered a hospital, where he was told that he had appendicitis, but left the institution and entered St. John's Hospital. On entering the hospital and during the day previous he had had pain and tenderness over the entire abdomen, which had become localized above McBurney's point. His temperature ranged between 100° and 101° , and he had a decidedly anxious expression of countenance. Examination of the abdomen revealed an area of tenderness and dulness in the region of McBurney's point and

extending to the right. A mass could also be felt in the same region. Appendical or postcecal trouble was suspected, and an exploratory incision was advised. Operation: An incision was made above and in the line of the tumor. On opening the peritoneum a mass was presented to view covered with plastic lymph, and a small amount of serum was allowed to escape. The mass proved to be a long, lobulated lobe of the liver, about three inches long, and the subject of an acute hepatitis and perihepatitis.

Nothing abnormal was found in the regions of the appendix or gall-bladder. Some of the plastic lymph was sponged away and the wound closed. The patient made an uninterrupted recovery and has had no return of abdominal symptoms during a succeeding period of eight months. This case was reported to show how misleading at times are signs and symptoms in abdominal lesions. In the case reported we had the following signs: Temperature, tenderness in the region of McBurney's point, rigidity of the right rectus muscle, and a tumor.

Discussion.

DR. W. C. WOOD said that in reference to these cases, Osler in his book on "Abdominal Diagnosis," has called attention to these projecting points from the liver in reference to differentiation of chronic cases from carcinoma, but the speaker had never seen the prolongation of the liver in acute cases.

EPITHELIOMA OF THE LOWER JAW.

DR. WM. F. CAMPBELL presented a patient 63 years of age, who, three months prior to the time he came into the Williamsburgh Hospital, had suffered from what he thought was a gum-boil situated in the last alveolar process of the molar tooth, from which that tooth had been removed some time before. Six weeks after discovering this he went to a dentist, and the dentist treated it as a suppurative process. When he was seen by Dr. Campbell he presented a typical picture of epithelioma, and a portion of the growth was removed under cocaine, and given to the pathologist. Upon his report of malignancy, Dr. Campbell had removed half of the lower jaw with the result which was shown. As a result of the operation the cicatricial tissue forming on the side had pulled the remaining portion of the jaw toward the site of operation, so there is little coaptation of the teeth, and he is com-

pelled to live on soft food. The glands that were infected in the floor of the mouth were removed at the same time.

EPITHELIOMA OF THE PENIS.

DR. WM. F. CAMPBELL presented a man, 70 years old, who, three months prior to his coming into the Williamsburgh Hospital had discovered a small papule on the head of the penis, which rapidly enlarged and proceeded to eat away the entire glans. The body of the penis was also involved at that time, as well as the glands in the inguinal region. Dr. Campbell did a typical amputation of the penis with the results shown to the Society. This patient was allowed up on the fourteenth day, and was presented four weeks from the time of operation. The urethra was transplanted about an inch and a half below the pubic bone, so as to mechanically reproduce the female urethra as nearly as possible. The spermatic cord was ligated and excised on each side.

HISTORICAL DEPARTMENT.

VALENTINE MOTT, M.D., LL.D.

This distinguished American Surgeon was born at Glen Cove, Oyster Bay, Long Island, August 20, 1785 and died in New York City, April 26, 1865. He was the son of Dr. Henry Mott a native of Hempstead, Long Island, a physician who for many years practised the healing art.

Dr. Valentine Mott's education was received from private instructors at Newtown, Long Island. Entering Columbia College in 1804 and receiving the degree of M.D. in 1806—his preceptor being Valentine Seaman, M.D., also a native of Long Island, and the first to introduce clinical surgical instruction in the State of New York in 1811 at the Old New York Hospital.

In 1810 Dr. Mott was appointed Professor of Surgery in Columbia College. At the merging of the faculty with the College of Physicians and Surgeons in 1813 he retained the chair until 1826. At this time in connection with several of his associates he founded Rutgers Medical College in New York City, in which he held the chair of surgery. This college was in operation for only a few years, so in 1830 he resumed his connection with the College



VALENTINE MOTT, M.D., LL.D.





VALENTINE SEAMAN M.D.

of Physicians and Surgeons as Professor of Operative Surgery. Resigned in 1834; from 1840 to 1850, Professor of Surgery, University of New York; Emeritus Professor of Surgery in 1852.

From 1817 to 1837 he was Attending Surgeon of the New York Hospital. Here he also afforded lessons of instruction to medical students and to the younger members of the profession.

It may be well in this connection to note the following: The first operation under anesthesia was performed on October 16, 1846 at the Massachusetts General Hospital.

Dr. Mott ligated the Arteria Innominata, May 11, 1818; Primitive Iliac Artery, March 15, 1827; Entire Exsection of the Clavicle, June 17, 1828; Operation for the Relief of Immobility of the Lower Jaw, November 19, 1821; Amputation at the Hip-Joint, 1824. He has a record of one hundred and thirty-eight ligations of arteries for the cure of aneurism. The honorary degree of M.D. was conferred by the University of Edinburgh, and that of LL.D. by the University of the State of New York.

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

VALENTINE SEAMAN, M.D.

A native of North Hempstead, Long Island, where he was born April 2, 1770. He died June, 1817. His early education was received in the village schools conducted by the Society of Friends of which he was an adherent through life. He was the first educated man of that community in New York.

His preceptor being Nicholas Romaine, M.D., the first President of the College of Physicians and Surgeons, 1807-11; President of the New York State Medical Society, 1808-9-10, and the first President of the New York County Medical Society in 1806.

In 1791 Dr. Seaman entered the University of Pennsylvania, receiving the degree of M.D. in 1792.

He was appointed one of the Surgeons to the New York Hospital in 1796 and the better to render it advantageous to the medical student he projected in 1801 a course of Clinical Surgery while his friend Edward Miller, M.D., assumed Clinical Medicine. This was the first attempt to give Clinical, Surgical and Medical instruction in New York.

The earliest reference to public instruction in New York will

be found in a note that appeared in the *Medical Repository* for 1804, stating that a lying-in ward had just been established in the Almshouse—in connection with Bellevue Hospital—and that as a sufficient number of cases occurred there, Dr. Valentine Seaman had begun a course of lectures on the Obstetric Art, including Anatomy, Physiology and Practical Parts, and as the establishment is particularly and exclusively devoted to the education of females, it will be easy for women who practice, or intend mid-wifery to avail themselves of it.

The appearance of yellow fever in New York in 1795 gave him an opportunity to introduce himself. He entered into an examination of the nature of the pestilence which he published in the *Medical Repository*. His conclusions were that the disease might have been imported but it required a combination of local causes to give it potency.

He was active in introducing the practice of vaccination in New York, having obtained matter from Dr. Waterhouse of Boston. In 1816 he published a discourse on the subject, which he had delivered before his Clinical Class.

In 1810-11 he united with several other professional men in forming a new medical institution in connection with Queens College of New Brunswick. This organization lasted about three years.

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

Dr. William Browning has been appointed Consulting Neurologist to the Long Island State Hospital, Flatbush.

At the Long Island College Hospital, Drs. William E. Butler, Clarence R. Hyde, and Albert M. Judd have received the appointments of Assistant Surgeons in the Gynecological Depart-

ment, assisting respectively Drs. Jewett, Palmer, and McNaughton.

Dr. Frank H. Knight of the House Staff of St. John's Hospital has been appointed on the staff of the Sloane Maternity Hospital, New York.

At the annual election of officers of the Long Island Medical Society, held at the December meeting, the following were chosen: President, Alexander C. Howe; vice-president, Wm. S. Hubbard; secretary, James C. Hancock; treasurer, Ralph H. Pomeroy; trustee, Heber N. Hoople.

Dr. Addison Raynor, who has been in practise in Riverhead for about three years, and is secretary of the Suffolk County Medical Society, and a member of the Associated Physicians of Long Island, has moved to Brooklyn and opened an office at Flatbush avenue and Church lane.

Dr. Lewis H. Miller has changed his residence from Spencer place to 287 Clinton avenue.

Dr. William P. Pool announces his removal to 147 Clinton street.

In the December news column, a printer's error was made in the name in the announcement that Dr. Henry R. Price had returned to Brooklyn and opened an office at 163 Hancock street.

Dr. Henry Noss, formerly of Jay street, who had resumed practise in Brooklyn, after remaining a short time here, has permanently settled in Burbank, N. Y.

Dr. John Byrne sailed for Europe in December, to spend the winter in the south of France. He expects to return in May.

Dr. Emilie C. Schirmer, wife of Dr. Wm. C. Schirmer of Franklin avenue, sailed for Europe, November 8th. She will take a post-graduate course in bacteriology and pathology at Vienna and Berlin, and return next spring.

Dr. Sewell Matheson, having traveled through England and the Continent, extended his trip to Egypt.

A silver anniversary was celebrated at St. Peter's Hospital in December, in honor of the twenty-five-years' connection with the hospital of Dr. J. E. Clark, president of the staff, and Dr. J. D. Rushmore. They were presented with beautiful silver wreaths, handsomely framed in commemoration of the event. A banquet followed, at which the entire staff of physicians of the hospital were present.

The marriage of Dr. Elizabeth G. Gilkison to G. Colesberry Purves of Philadelphia took place November 17th. Dr. Dudley D. Roberts was married December 6th to Miss Carrie Steele, daughter of Sanford H. Steele of Pierrepont street.

Dr. Frederick C. De Mund, who practised in the New Utrecht section from 1857 to 1895, died at his home in Twenty-second avenue, November 22d. Dr. George B. Banks of Huntington died December 4th. He had been president of the Board of Education and Commissioner of Highways of the town.

The annual meeting and scientific session of the Associated Physicians of Long Island will be held at 1313 Bedford avenue, January 26th, at 3 P.M. The dinner and social session takes place at the Union League Club.

The meeting of the 2d district delegation to the State Medical Society will be called for the same afternoon at 2 P.M., at the County Society building.

The Verein deutscher Aertze von Brooklyn will hold its regular annual dinner at the New Schwaben-Halle on January 12th. In previous years the "Fest" has always been celebrated at Arion Hall. The Society is duly incorporated and has a membership of some twenty-seven. In accordance with German tastes, and as is possible in smaller societies, the genial and social side of life is cultivated, as well as the purely scientific.

Dr. John C. MacEvitt is to be congratulated upon the winning of his suit, which was brought in the Supreme Court to recover a fee for professional services. If physicians would more frequently have recourse to the law to secure payment of bad debts, there might be less difficulty with collections.

The new State Pharmacy law, passed at the last session of the Legislature, takes effect January 1st. It creates a State Board of Pharmacy and confers on the Board extraordinary powers to make and enforce such regulations as may be necessary to protect public health, to regulate the sale of poisons, the character and standard of drugs and medicines, hours of work, and inspection of pharmacies. Brooklyn is represented on the Board by Dr. Albert H. Brundage and Dr. William Muir, president of the New York State Pharmaceutical Association.

Under the existing charter of Greater New York, the Board of Health is composed of three Commissioners of Health, together with the President of the Board of Health, and the Health Officer

of the Port, and it is expressly provided that the President of the Board shall not be a physician. The charter revision commission has recommended that the Board be composed of one commissioner, to be selected by the Mayor, without restriction upon his choice, and of the Police Commissioner and the Health Officer of the Port.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

A TEXT-BOOK OF PRACTICAL MEDICINE. By William Gilman Thompson, M.D., Professor of Medicine in the Cornell University Medical College, New York City; Physician to the Presbyterian and Bellevue Hospitals, New York. Illustrated with 79 engravings. Lea Brothers & Co., New York and Philadelphia, 1900.

The author tells us that the advent of a new century makes appropriate a comprehensive review of the present status of medical practise. It is the aim of this book to offer such a presentation to students and practitioners. We congratulate the author on his industry and courage in contributing to a department already so thoroughly equipped. We have examined the volume carefully and find it a comprehensive review of medical practice.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and especially prepared articles on Medicine, Neurology, Surgery, etc., etc., by leading members of the medical profession throughout the world. Edited by Henry W. Cottell, A.M., M.D., U. S. A.; John Ashhurst, M.D., LL.D., and Charles H. Reed, M.D., of Philadelphia; James I. Whittaker, M.D., LL.D., of Cincinnati. Vol. II. Tenth Series, 1900. J. B. Lippincott Co., Philadelphia.

Under the head of New Inventions the Kromskof is described. It is an optical instrument which enables one to see a stereoscopic picture reproduced in colors. Combined with a magic lantern it will throw photographic pictures, showing objects in their natural colors, on a screen. It will be of great service in reproducing the natural appearance of pathological specimens.

There follow numerous articles under the heads therapeutics, medicine, neurology, surgery, obstetrics, gynecology, diseases of the eye and ear, and dermatology. The last chapter gives a report of the fifty-first annual meeting of the American Medical Association.

The volume is an interesting one. If the publishers would furnish a general index to all the series thus far published it would enhance the value of this great amount of clinical material.

CLINICAL EXAMINATION OF THE URINE AND URINARY DIAGNOSIS. A Clinical Guide for the Use of Practitioners and Students of Medicine and Surgery. By I. Bergen Ogden, M.D., Instructor in Chemistry, Harvard University Medical School; Assistant in Clinical Pathology, Boston City Hospital; Medical Chemist to the Carney Hospital; Visiting Chemist to the Long Island College Hospital, Boston. Illustrated Price, \$3. W. B. Saunders & Co., Philadelphia, 1900.

This book is divided into two parts: Part I., chemic and microscopic methods; Part II., diagnosis, including our present knowledge of the character of the urine, the diagnosis, and differential diagnosis of disturbances and diseases of the kidneys and urinary passages, a brief enumeration of the prominent clinical symptoms of each disease, and the peculiarities of the urine in certain general diseases of the body. This is one of the most complete clinical guides to urinary diagnosis that we have seen.

RHINOLOGY, LARYNGOLOGY, AND OTOTOLOGY, AND THEIR SIGNIFICANCE IN GENERAL MEDICINE. By Dr. E. P. Friedrich, Privatdocent at the University of Leipzig. An authorized translation from the German. Edited by H. H. Curtis, M.D. W. B. Saunders & Co., Philadelphia and London, 1900. 348 Pages. 8vo. Price in cloth, \$2.50.

Dr. Friedrich is to be congratulated upon his interesting and novel contribution to medical literature. His book is a veritable mine of information, and every page bears evidence of a careful study of the correlation of diseases. Beside its educational mission, the volume has another important function: that is to present an argument, based upon clinical data, against exclusiveness in specialism, and also to offer a plea for intelligent co-operation between the general practitioner and the specialist. There is much new thought in the book, but it is not a compilation of original investigations, nor does it claim such distinction. It is the product of a broad thinker, and it is a stimulus to others to do the work which comes to them on similar lines. It dignifies the labors of the specialist, and is a most commendable effort on the part of the author for a greater harmony of action in treatment of diseases.

The American edition has been produced under the supervision of Dr. Curtis of New York.

The scope of the volume may be judged by the following partial list of contents:

The relations existing between the nose, larynx, and ears in diseases of the respiratory organs, in diseases of the circulatory system, in diseases of the digestive system, in diseases of the blood, in chronic constitutional diseases, in acute infectious diseases, in chronic infectious diseases, in diseases of the kidney, and in diseases of the nervous system.

W. F. DUDLEY.

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

EDITOR IN CHIEF:

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CHARLES D. NAPIER, M.D.

VOL. XV, No. 2.
WHOLE No. 158.

} BROOKLYN, N. Y., FEBRUARY, 1901.

{ Single copies 25 cents
{ \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

WOUNDS OF THE LIVER AND GALL-BLADDER.

BY JAMES P. WARBASSE, M.D.

Read before the Medical Society of the County of Kings, June 19, 1900.

The close proximity of the liver to the walls of the thorax and abdomen, its inelasticity and high degree of friability, its great weight and small area of attachment, notwithstanding its protected position, render it easily susceptible to injuries and wounds. The fact that it completely fills the right upper part of the abdomen, extending from the anterior to the posterior walls, makes it especially subject to injuries resulting from pressure applied in an antero-posterior direction. The most common causes of rupture of the liver are compression, with or without fracture of ribs, blows and falls from a height. This accident has occurred in cases in which the patient has fallen and struck upon the feet. It has also occurred when the force of the fall has been sustained upon the head. Heinzelmann has reported the case of a young man suffering from pneumonia, who turned suddenly in bed in a fright, sustained a rupture of the liver, evidently due to the sudden muscular strain, and died from intra-abdominal hemorrhage.

Gunshot and other penetrating wounds of the liver have no etiological peculiarities.

The frequency of wounds of this viscus is not small. Among seventeen fatal injuries to the abdomen in Guy's Hospital, wounds of the liver were observed in nine cases. In twenty-three cases of death from traumatic rupture of abdominal viscera by blunt force, occurring in the Methodist Episcopal Hospital, rupture of the liver was found in ten cases. The lines of laceration may be in any direction or in any part of the organ. Often the wounds are multiple, sometimes resulting in the complete detachment of masses of liver tissue. Belcher reports a case in which there were pieces of liver tissue free in the abdomen. However, the most common seat of laceration is the convexity of the right lobe.

Because of the peculiar construction of the liver, when a wound or laceration of its substance occurs, the vessels, with which it is plentifully supplied, when torn across do not collapse as they do in other soft tissues but are held open by the inelastic substance in which they are imbedded; and thus from comparatively small wounds of this organ a persistent bleeding takes place, which in wounds of the same extent in other soft structures would quickly undergo spontaneous hemostasis. What is true of the blood-vessels is true also of the bile channels; and from these an oozing of liver secretion takes place. Compared with the escape of blood, the oozing of bile is of little importance, except in cases in which there has been a wounding of the large bile ducts or of the gall-bladder.

Preeminently the symptoms of the greatest importance are those arising from the hemorrhage; indeed without these symptoms, a diagnosis of laceration of the liver can be made only with difficulty in the absence of a wound of the overlying structures. Hemorrhage occurs in all wounds of the liver, and in the vast majority of cases it is by far the chiefest symptom. A man falls from a height, is run over by a cart wheel or sustains a blow over the liver—if the symptoms of progressing anemia are present, intra-abdominal hemorrhage from a wound of the liver must be suspected. Rupture of the liver is so frequently complicated with other injuries that their symptoms must also be taken into account. These complications may consist in injury or rupture of any of the neighboring viscera, the lungs, the spleen, the kidneys and intestines. In the case of an uncomplicated laceration of the liver, the rapid pulse, the cool skin, the pallor, the air-hunger, and the localized tenderness, one or all, may be ex-

pected. In the author's own experience, he is free to say that the most careful palpation and percussion have been of little value as diagnostic aids in determining the presence of blood in the abdomen. The surgeon must depend upon the classic signs of acute anemia and the local evidences of traumatism. In the severe cases these symptoms of profound anemic depression continue, and, notwithstanding stimulation and hot applications, the patient dies in a few hours unless the bleeding is stopped by surgical means.

Pain at the site of the injury is commonly present. It may be due to the injury to the chest and abdominal walls, to the intra-abdominal traumatism, or to both. The following case observed in the Methodist Hospital will illustrate this symptom: A man in a drunken stupor fell down a flight of stairs. On the following day he complained bitterly of pain referred to the right hypochondrium, and was brought to the hospital eighteen hours after the injury. There was no considerable acceleration of the pulse rate. The pain and tenderness were extreme. For twenty-four hours after the injury there were no symptoms of hemorrhage. Then the pulse steadily increased to 120, 130, 140, which it reached on the fourth day. The exquisite right hypochondriac pain and tenderness remained unchanged from the beginning, and distention and muscular rigidity increased. The abdomen was opened in the right side on the fourth day. Everywhere in the abdomen blood was found. The liver was found torn nearly in two through the right lobe. From the great wound surfaces blood was flowing. So rapid and overwhelming was the bleeding that almost before the wound could be packed with gauze the patient died of acute anemia.

When a wound of the liver is sustained, while the bleeding is progressing, the intra-abdominal tension is increasing because of the filling of the abdomen with blood and blood-clots, while at the same time the intravascular tension becomes less because of the loss of blood. The wound thus becomes plugged by a clot, and with the increasing pressure upon the outside of the liver and the diminishing pressure behind the clot, the bleeding tends to be held in abeyance. The author would in this connection venture the hypothesis, in view of the extreme friability of the liver and particularly when it is the seat of degenerative changes, that the original wound may sometimes be increased in size by the operation of the above-mentioned forces, the clot acting as a wedge and fulcrum, and being assisted in its action by the respiratory

movements of the diaphragm and abdominal muscles, the movements of the patient and the palpating hand of the surgeon. This might more easily be the case when the rent separates from an attached portion of the liver a part of the organ which has no ligamentous attachments, and which hangs free to be operated upon by the continuous action of these lacerating forces. It is a general experience, in the presence of a lacerated wound of the liver, that immediately upon opening the abdomen and exposing the rent, the intra-abdominal tension being relieved, the hemorrhage recurs or becomes aggravated.

Besides these symptoms are certain signs of less importance, but which point to a wound of the liver. Icterus is sometimes observed. The escape of bile from a wound over the liver, and the later formation of a fistula, discharging bile-stained fluid, is of importance. Pains radiating in the right shoulder, arm, breast and neck are called attention to by Koenig—also hiccough and a diminution of the respiratory excursion of the diaphragm. In gunshot or stab-wounds the bleeding is usually less than in ruptured or lacerated wounds. In gunshot wounds an escape of bile is observed in 41 per cent. of cases. The bleeding may be spontaneously checked by the formation of a clot in the wound-channel. Later the escaping bile may be mixed with liver detritus, broken down blood-clot and pus. Bile is usually not observed in the discharges of such a wound before the fifth day.

In the case of wounds involving the gall-bladder or the great bile-ducts at the base of the liver, bile escapes into the general abdominal cavity. In the absence of a wound of the liver, to complicate the injury with fatal hemorrhage, the discharge of bile may continue for many days. In such cases more than two gallons of bile-stained fluid have been found free in the abdomen. Bile escaping thus from an uninfected gall-bladder does not excite peritonitis. It is a bland fluid, but slightly irritating, and tends but slowly to excite plastic exudation from the peritoneal surfaces. It must be borne in mind, however, that the gall-bladder and the great biliary ducts stand in close relation to the duodenal portion of the intestinal canal. Normally there is a current tending centrally through the common duct into the duodenum. This current is sustained by the pressure from behind residing in the bile accumulating from the liver. This regurgitation of intestinal contents through the ductus communis choledochus is prevented by this biliary vis-a-tergo. When by virtue of a wound of the bile channels, their pressure-producing contents escape into the

abdomen, the intraduodenal pressure becomes greater than that in the common bile-duct, and micro-organisms and infective materials from the intestine easily pass into the common duct and through the biliary channels up as far as the wound from which the bile is escaping. Thus quite invariably an infective peritonitis takes place sooner or later.

It is not within the scope of this paper to enter into a discussion of the bacteriology of the bile-ducts: suffice it to call attention to the fact that the secretion of the liver is possessed of peculiar properties, which so far as certain varieties of bacteria are concerned, may be designated as antisepsis, while upon the growth of other intestinal micro-organisms it exerts but a mildly inhibitory action, and this includes most of the inflammation-producing organisms residing in the small intestine. Upon certain other bacteria it has little or no inhibitory influence. Thus we frequently find the gall-bladder infected with the common colon bacillus, yet the inflammation which it produces here is in no way so violent as that which the same organism produces in the vermiform appendix, an organ which, with the exception of its blood supply, has much in common with the gall-bladder in its anatomy, pathology and surgery.

The infection of the peritoneum which takes place in these cases of wound of the gall-bladder or gall-ducts is slow, but quite as inevitable as it is tardy. The continuous escape through a wound, involving mucous and serous membranes, of the peculiar glairy, mucoid secretion of the liver prevents its granulation and cicatrization. The infection may not have become general until after many days when a large amount of bile may have accumulated in the abdomen. Of course if the wound takes place through an already infected biliary tract, or if with the infliction of the wound septic material is introduced, then the development of these symptoms of infection is more rapid. Peritonitis, associated with the accumulation of bile in the abdomen, is therefore usually of slow development and influence in its course by the presence of the bile. The following will illustrate the train of pathological events following rupture of the gall-bladder: After a traumatism to the right hypochondriac region the patient may be put to bed with a subnormal temperature, which gradually rises to normal. The stools show the absence of bile; and bile-salts, and bile-coloring matter may be present in the urine. Vague and diffuse abdominal pains may be present. Constipation develops along with tympanites, thus rendering more difficult the discovery of fluid

in the abdomen. After a week or ten or fifteen days a gradual rise of temperature begins with an increase of general abdominal pain. The unmistakable signs of peritonitis develop, and without surgical interference the patient dies. The autopsy shows the abdomen containing a large amount of bile, distributed pretty generally throughout, mixed here and there with flocculi of fibrin and pus. There are a few adhesions. A rupture of the gall-bladder is found. In one case reported, sixteen days after such an injury, the chief discomfort was referred to the left lumbar region, where an abdominal section was made and a large amount of bile removed. Another opening was then made in the right side and more bile discovered, three quarts of fluid in all being removed. The source of the trouble was found to be a torn gall-bladder, the rent in which was sutured, abundant drainage supplied and the patient conducted to recovery.

These are the symptoms of the grave lesions of the liver and its appendages. Slight wounds or bruises of the liver may give no symptoms at all. There may be simply a tear of the capsule or a loosening of the same with some subperitoneal bleeding. Contusion of the liver may cause interstitial hemorrhage, which later may become infected.

If the diagnosis of uncomplicated rupture of the liver or its appendages is not easy, still more difficult is the diagnosis of these conditions when complicated by injuries of other neighboring structures. Of the ten fatal cases of rupture of the liver from blunt force, occurring in the Methodist Hospital, but two were uncomplicated. Among these complications, or wounds which were caused by the same forces as those which caused rupture of the liver, the following were found in these ten cases: Fracture of lower ribs of right side, laceration of the lower lobe of the right lung, laceration of the spleen, laceration of both kidneys, rupture of the colon, rupture of the duodenum, fracture of the pelvis, fracture of the dorsal vertebræ, rupture of the bladder, fracture of the sternum, and in some cases fractures of the bones of the extremities were observed. It is in cases which are not associated with wounds of the parieties that the surgeon experiences the greatest difficulties of diagnosis. In many cases it is only possible to make a diagnosis of intra-abdominal hæmorrhage of undetermined source. When however the evidences of a continuing hæmorrhage are present, the location of the chief tenderness is a most valuable guide in determining the source of the bleeding. Although a considerable degree of pain, localized ten-

derness, and general rigidity of the abdominal muscles are present in many cases, still in the absence of these local signs a fatal hemorrhage may be taking place. Most surgeons have had opportunities to witness the insignificant train of symptoms which at first sometimes emanate from the extensive and fatal intra-abdominal lacerations.

The gravity of uninfected wounds of the liver depends upon the bleeding, injury to the gall-bladder or large ducts, and the destruction or detachment of large segments of the organ. Renfick has demonstrated that a large part of the liver may be removed from rabbits without causing the animal serious inconvenience. He has removed three-fourths of the liver and seen the remaining fourth undergo a hypertrophy till it attained three times its original size, thus almost entirely reproducing the organ. A wound of the liver which has not terminated fatally from hemorrhage may go on to suppuration from infection from associated injury to other viscera or the abdominal wall. Liver abscess or localized peritonitis may thus develop.

Edler collected the statistics of 543 cases of wounds of the liver. His statistics, which do not wholly represent the recent surgery, show a mortality of 86 per cent. for rupture of the liver, 65 per cent. for incised wounds, and 55 per cent. for gunshot wounds, an average mortality of 67 per cent. The more recent statistics are those of Terrier and Anvry. They report 46 cases operated upon. There were twenty cases of incised wounds, of which fifteen recovered; fourteen cases of gunshot wounds, of which ten recovered; and twelve contused ruptures of the liver, of which seven recovered. Thus of the forty-six cases operated upon, thirty-two recovered and fourteen died.

The treatment of wounds of the liver which are associated with a wound of the overlying structures must be based on the same general principles which govern the treatment of other wounds. It is in the cases that are not associated with wounds of the parietes that the surgeon is called upon to exercise a high degree of diagnostic acumen and surgical judgment in determining the therapeutic attack. These injuries usually occur in robust men of great resisting capacity, and the gravity of the injury for the first few hours is often overlooked. The original symptoms of hemorrhage or of peritonitis may be slight, but the persistence of symptoms pointing to these conditions calls for prompt exploratory abdominal section. In the class of patients in whom these accidents usually occur, if the surgeon waits until the

symptoms have attained a look of gravity, he will find pathological conditions far graver than the clinical appearances had seemed to indicate. In just this class of cases, surgery has been too guilty of conservatism which conserves nothing. If the positive diagnosis has not been made, the suspicion of such an injury should entitle the patient to the benefits of an exploratory incision. The place of the greatest tenderness will be found not far from the lesion. The injury having been located, blood and bile should be removed from the abdomen. Bleeding from wounds of the liver is easily checked by light pressure with a gauze tampon. Rents in the liver may be sutured with a large round needle armed with heavy thread to prevent cutting through its friable substance. It is surprising how slight pressure is required to stop such bleeding. Delatour has reported two cases, in one of which bleeding had been going on for twelve hours and the abdomen contained more than two quarts of blood. The hemorrhage was completely stopped by making gentle pressure for a few minutes with a bit of gauze.

Non-infected wounds of the gall-bladder should be sutured. In penetrating wounds the wound may be closed and reached by a strip of gauze drain passing through the abdominal wall, or the gall-bladder may be sutured to the opening in the parietal peritoneum. Wounds of the gall-ducts should be sutured if accessible, a narrow strip of drain being introduced if the danger of infection is considerable. If the wound of the gall-duct is such that it can not be reached or if the condition of the patient will not permit of its being sutured, the surgeon must be satisfied with cleansing the abdomen and providing by drainage for the escape of the overflowing bile. The drain may soon be dispensed with, and the gradual contraction of the drain-channel may divert the bile into its natural course. If all of the secretions of the liver escape in this way, the condition becomes a serious one. The amount of bile that is lost is very great, and the patient rapidly develops the fatal symptoms arising from the withdrawal of this secretion. The most noticeable of these signs is the peculiar wrinkling of the skin of the whole body and progressive inanition. If attempts to close the fistula fail the patient must be supplied with bile to compensate for that lost. The administration of inspissated bile will correct in some measure these defects. But when we consider that the patient is losing twenty or thirty ounces of bile in twenty-four hours, all of which is necessary for the animal economy, the seriousness of the situation becomes evident.

The author suggests in certain cases of this sort the entire

feasibility of making an anastomosis between the fistulous tract and the upper part of the small intestine, thus permitting the escaping bile to empty itself into the intestinal canal instead of through the surface of the body. Next to this he would suggest in these cases the making of a high enterostomy, and collecting the escaping bile or conducting it immediately into the intestinal fistula.

In closing, the author wishes to bear testimony concerning the value of intravenous infusion of warm saline solution in cases of intra-abdominal hemorrhage. The bleeding having been controlled and the blood sponged out of the abdomen, he has seen lives which hung in the balance saved by the timely introduction into the veins of a compensatory amount of normal saline fluid.

INFLAMMATION OF THE GALL-BLADDER AND BILE-DUCTS.

BY H. BEECKMAN DELATOUR, M.D..

Surgeon to the Norwegian, Long Island College, and St. John's Hospitals.

Read before the Medical Society of the County of Kings, June 19, 1900.

The gall-bladder and bile-ducts may be the seat of either acute or chronic catarrhal inflammation, croupous inflammation, or suppurative inflammation.

Acute catarrhal cholangitis is usually a simple affair and yields to medical treatment. It may be due to exposure to cold, injury, or may form a part of the lesion of an acute gastro-enteritis. It may also accompany inflammations of the liver, acute infectious diseases, and carcinoma of the liver. Whatever the cause the chief symptom is jaundice. This is due to an obstruction of the bile-ducts by the swollen mucous membrane. The treatment is entirely medical and will not be here considered.

Chronic cholangitis is usually a persistence of the acute catarrh, and is of importance because the persistent jaundice which accompanies it may lead to a suspicion of malignant disease. As with the jaundice, there are none of the other signs of malignancy, as loss of flesh and strength, ascites, etc., the differentiation is quite easy. Of course chronic cholangitis may be an accompaniment of malignant disease and in many of these

cases is the cause of the jaundice. This condition is present in a large proportion of cases of cholelithiasis.

Chronic cholecystitis is most frequently dependent on the presence of gall-stones, but may occur with cancer of the liver, hydatid disease, or abscess. Chronic catarrh of the bile-ducts may either be a cause of the gall-stones forming, or, conversely, may result from the presence of stones in the gall-bladder or ducts. In the former case the viscid mucus, by its presence, prevents the free flow of bile and acts as a nucleus for the formation of stone, while in the latter the irritation of the stones, when present in the gall-bladder, causes the inflammation. In these cases even after the stones have passed into the intestine the catarrh of the bile-passages may persist.

Symptoms.—Jaundice is present in some and absent in other cases, depending largely on the seat of the inflammation. If the common duct is involved jaundice is quite regularly present, while if the gall-bladder only is the seat of inflammation the jaundice is absent.

Pain is frequently a marked symptom and not infrequently is of the same type as that which accompanies gall-stones. In this instance the pain is produced by the presence of a thick, ropy mucus, which blocks the bile-ducts as completely as will a calculus. Such a case was reported to this Society by me in a paper on "Empyema of the Gall-bladder."* The patient, a man twenty years of age, gave a history extending over three weeks, the symptoms being those of an acute inflammation of the gall-bladder, with severe biliary colic. At operation, when the viscus was opened, about four ounces of thick, ropy mucus was evacuated. No stones could be found in either the ducts or gall-bladder, and none were passed from the bowels. Drainage of the gall-bladder was established and continued for three weeks. The patient made a perfect recovery and had no further symptoms of colic.

The pain in these cases usually is not as severe nor as prolonged as in cases of true gall-stone colic, and examination of the feces after an attack fails to show the presence of stone. Tenderness over the region of the gall-bladder is not very marked and there is seldom sufficient distention to cause a tumor which can be palpated.

Treatment.—Regular exercise, regulation of diet, possibly abdominal massage, and the use of salines may bring about a

* BROOKLYN MED. JOURNAL, NOV., 1896.

cure. If a fair course of this treatment fail to relieve the symptoms and the periodic attacks of pain continue, then surgical intervention is called for. In these cases simple cholecystotomy with drainage continued for from two to four weeks will effect a cure. In addition, the ducts may be washed with a warm solution of sterile water injected through the opening in the gall-bladder.

Operation is as much demanded and just as beneficial in these cases as in cases of gall-stone.

Croupous choledochitis and cholecystitis may exist as an extension of a croupous enteritis, and a membrane develop in the bile passages and produce attacks of colic resembling biliary colic.

Dr. Fenwick describes a case in which, on two occasions, at interval of ten days, casts of the gall-bladder were passed, per rectum, after an attack simulating biliary colic.

Diagnosis from cases of gall-stone colic can only be made by careful examination of the feces.

Treatment.—These cases are to be treated as cases of membranous enteritis, but should the attacks continue the gall-bladder should be opened and drainage established. A cure will usually follow.

Suppurative inflammations of the gall-bladder and bile passages vary greatly in their intensity and gravity.

Suppurative cholecystitis is, as a rule, associated with gall-stones, but may be due to the presence of tumors or typhoid infection. In empyema of the gall-bladder the infection varies in intensity, so much so that the cases have been described as simple empyema of the gall-bladder and phlegmonous cholecystitis.

In simple empyema we usually have first the history of the presence of gall-stones, followed by a more or less sudden onset of fever, with chills in a fair proportion of cases. Loss of appetite, coated tongue, and tenderness over the gall-bladder are nearly always present. Jaundice is sometimes present, but more frequently absent.

If there is much distention a tumor will be felt projecting just below the lower edge of the liver, about opposite the ninth rib. The tumor will usually move with the respiration, but if adhesions have already taken place between the gall-bladder and the abdominal wall this may not occur.

If not operated the pus may empty itself directly through the

abdominal wall, or at the umbilicus after following along the suspensory ligament of the liver, or into the stomach, transverse colon, or cecum. In one case reported the rupture was into the pleura.

Treatment.—For this condition the only plan of treatment is cholecystotomy at as early a date as possible. Phlegmonous cholecystitis was first described by Courvoisier in 1890. This is a rare but exceedingly fatal malady, if left to itself, resembling very closely acute gangrenous appendicitis. This condition, while usually dependent on the presence of gall-stones, may arise quite independently of them. In either case the presence of the *B. coli commune* is quite constant.

Symptoms.—Pain appears suddenly, is very acute, and is accompanied by tenderness over the region of the gall-bladder. This tends to become general, although a point of maximum tenderness exists over the region of the gall-bladder.

Temperature, in this condition, as in appendicitis, is no guide, for in some mild cases it is marked, while in severe cases it may be insignificant.

The pulse is always rapid and feeble, and the respiration markedly thoracic. Tympanites and vomiting rapidly appear in most cases and are so persistent that the case may appear to be one of acute intestinal obstruction. Jaundice is not a constant symptom.

Prognosis is usually very grave, especially in those cases where gangrene has developed in all the layers constituting the walls of the gall-bladder.

Diagnosis.—From appendicitis it is to be differentiated by the location of the pain and tenderness. In appendicitis the pain and tenderness are usually low down and reflected toward the umbilicus, while with the cholecystitis the pain usually begins over the liver and is referred to the epigastrium or back.

Treatment consists in relief of pain by morphia and hot applications over the region of the liver, light diet, and careful watching of symptoms. If progress of the disease is evident operation should be immediately advised.

Gangrene of the gall-bladder is a further stage of phlegmonous inflammation. This condition is not a common one, the case reported by Dr. L. W. Hotchkiss in the *Annals of Surgery* in 1894, being the only recorded case. In this case the symptoms pointed to an acute appendicitis with peritonitis, but operation

disclosed a gangrenous gall-bladder containing stones. Death followed seven hours after operation.

The operative treatment of all varieties of inflammation of the gall-ducts and gall-bladder is for the purpose of drainage. As soon as it is proven that medical treatment does not improve the condition of the patient operation should be recommended.

Cholecystotomy or opening the gall-bladder is performed as follows: After proper preparation of the field of operation an incision four inches long is carried from the ninth rib downward along the outer edge of the right rectus muscle. The abdomen is opened and in the fissure along the free edge of the liver is seen the tip of the gall-bladder. This may be hidden from view by adhesions of the omentum or colon to the edge of the liver, in which case the adhesions must first be broken through before the gall-bladder is seen.

After exposing the gall-bladder the finger should then explore the surface of the gall-bladder, cystic and common bile-ducts to the duodenum, in order to determine the presence and location of calculi if they are present. The next step is isolation of the gall-bladder and protection of the general peritoneum, with large gauze pads, so that when its contents are allowed to escape the sponges will absorb all infective material. The gall-bladder is now incised (surgeons now generally concede that this is better than doing the operation in two stages) and the muco-pus with any calculi removed. Thorough search of the gall-bladder and ducts is now made with the finger or probe to see if any stones remain. Sterilized water may be injected through the common duct to demonstrate its freedom from obstruction. A drainage-tube is then sewn into the opening in the gall-bladder and pushed inward so as to invert about one-fourth or one-half inch of the peritoneal coat, and around the base of this inverted truncated cone a purse-string suture is passed, so as to hold it in position. The abdominal wound is then closed, after proper cleansing of the abdominal cavity, except at the point of exit of the drainage-tube. A plentiful dressing of absorbent gauze is now applied and is to be changed as frequently as the amount of discharge warrants. In all cases of empyema of the gall-bladder and even in simple inflammation of the bile-ducts the opening in the gall-bladder should not be closed at the primary operation, but drainage is necessary for at least two weeks.

The mortality of this operation is practically nothing. The cures are permanent.

CHOLELITHIASIS.

BY MATHIAS FIGUEIRA, M.D.

Read before the Medical Society of the County of Kings, June 19, 1900.

By cholelithiasis is understood the morbid process by which gall-stones are found in the liver and the series of pathological conditions and symptoms to which they give origin. From this definition one can easily understand that the subject cannot be properly considered in a paper limited in space and time, and therefore I have chosen for my paper here to-night, two of the most important aspects of the subject, the etiology and pathology of cholelithiasis. Gall-stones are found both in the biliary passage and in the gall-bladder and ducts. They are almost entirely composed of cholesterin and bilirubin calcium in different proportions and so they are classified as pure cholesterin, pure bilirubin calcium, and cholesterin and bilirubin calcium stones. Other classifications have been given in books, but the point of importance in regard to their origin and formation is that the two named substances, cholesterin and bilirubin calcium, are the almost sole components of them; other constituents as calcium carbonate and calcium phosphate and sulphate with iron and copper being rare and unimportant accidents. Gall-stones vary in numbers and size. The small ones are generally found in numbers, sometimes very large. Mayo Robson reports a case in which 720 were found in the gall-bladder, and Peters reports another in which the bladder contained 563 gall-stones. The largest stones are generally single or in small numbers and many attain considerable size. Feeder reported a case of a stone in the gall bladder over twelve inches in length, weighing sixty grains, and Kraus speaks of another the size of a pear.

The influence of age is quite remarkable in regard to the frequency of gall-stones. Although sometimes found in the infant, they are a disease of advanced life and the percentage of their frequency increases with age from a little over two per cent. before twenty years to three per cent. at thirty years, eleven per

cent. at fifty years and twenty-five per cent. after sixty years. Another peculiarity is the influence of sex. The percentage of gall-stones, according to Rechlinghausen statistics, 1887, being 4.4 per cent. for men, 20.5 per cent. for women, quite a pronounced difference. The statistics of Plassen published at Copenhagen in '94, and of Ballinger of Munich, published in '91, confirm the above figures in general.

Numerous other conditions, habits and disease widely different in nature and influence but all linked by a common causal influence when regarded in the proper light are given as causes for the formation of gall stones. Thus corpulence and sedentary and studious habits favor it, they are often found in connection with the gouty habit and in patients suffering from diabetes mellitus, according to Mayo Robson and Burchard, and also in cancer and cardiac diseases.

Langenbuch has lately advanced the opinion that floating kidney on the right side has a tendency to the formation of gall-stones and the same has been claimed for renal calculi so often found with gall-stones. Finally constipation, tight lacing and frequent pregnancies are also mentioned as causes. In regard to food some experiments related recently by Graham seem to be of interest. It was found in a case of biliary fistula that saccharine and farinaceous foods caused the bile to become thick and heavy while albuminous food caused a liquid and light bile. As the bile flows under very low pressure, food that causes it to be thick has tendency to produce stagnation and thus favor the precipitation of cholesterin and formation of gall-stones.

From this brief consideration of the etiology of gall-stones one can readily see the diversity and variety of causes assigned as factors in their formation.

In order to get a better understanding of the pathology of gall-stones I believe a consideration of a few points in the physiology and pathology of the liver will be of importance.

The dictum of Bichat that it would be found that the liver had other much more important functions than the production of the bile, has been fully verified. Of the many physiological functions of the liver I desire to call your attention for one moment to one of the most important, the one described by Samola and Geoffardi as the depurative function of the liver. Ever since the experiments of Heger and Lussano it was surmised by physiologists that the liver had the power of eliminating poisonous substances from the body. The notable experiment of Schiff threw

more light on this subject by clearly demonstrating that the liver had the function of arresting, changing and eliminating poisonous substances from the blood such as nicotine and other alkaloids.

The experiments of Schiff and Lauterbach received further confirmation and amplification in the labors of Geoffardi in studying the action of the liver in acute and chronic alcoholic poisoning. Finally Rogers and Cherrin demonstrated that the liver had the power of arresting and neutralizing the toxalbumins produced by bacterial infection and decomposition. This depurative function of the liver, this constant elimination of poisonous substances from the blood into the bile does often, as one can readily suppose, cause functional and organic changes in the liver, and catarrh of the biliary passage is one of the most common conditions so caused.

Another very important cause of catarrh of the biliary passages is their invasion by the numerous bacteria normally developing in the intestines. The belief prevailing at one time that the bile had antiseptic and germicidal properties has been demonstrated to be wrong, and the experiments of Lenderberg, Barnabei and others have demonstrated that micro-organisms of various kinds can easily be cultivated in pure bile. Under normal conditions of health the bile is an aseptic fluid and the biliary passage for a small distance above the intestinal entrance are free from micro-organisms, as shown by Escherich, Vignol, Dupré and others; but this condition of things is readily altered by disease and conditions interfering with the flow of bile from the liver, and Letienne has demonstrated the presence of bacteria in the bile of a large percentage of those dead from various infectious diseases. In this connection the experiments of Vetter and Duclaux are of interest. They demonstrated that if the common bile duct is ligated above the point where bacteria are generally found, that is above Vetter's ampulla, the stagnated bile remains indefinitely sterile, but if the ligature is placed below that point and an infected portion of the duct is enclosed that infection is sure to follow. This explains the infection of the biliary passage by bacteria in the course of many intestinal affections causing obstruction to the flow of bile or stagnation with catarrhal inflammation of the bile passages.

Other influences, not at present so well understood, seem at times to cause the infection of the liver passages with intestinal bacteria. The frequent presence of the germs of typhoid fever in

the gall-bladder and biliary passage seems to be a marked example in point.

We have then that catarrhal inflammation of the biliary passage is mainly caused on the one hand by the irritation produced by the constant presence in the bile of poisonous substances eliminated from the blood by the liver in its depurative function, and on the other by the entrance into the biliary passage of the micro-organisms of the intestines caused by various forms of local and general disease.

Let us now for a moment consider the change that takes place in the biliary passages and in the bile itself in the course of catarrhal inflammation. The composition of the bile is pretty constant, as a rule, and the percentage of its constituents varies but little. The cholesterin found in it is held in solution by the biliary salts and the alkalinity of the bile and any marked increase of its amount, or any decrease in the alkalinity of the bile, will cause its precipitation.

Now in catarrh of the biliary passage the amount of cholesterin is much increased by the disintegration of the epithelium that is converted into cholesterin and bilirubin that combines with the calcium in the bile to form bilirubin calcium. We have then that catarrh of the bile passages will cause an increase of cholesterin, a production of bilirubin calcium and a diminution of the alkalinity of the bile.

If added to this condition we should have any condition or disease increasing the density of the bile or interfering with its flow or causing stagnation we would have then all the conditions required for the precipitation of cholesterin and bilirubin calcium and the formation of gall-stones.

And from the foregoing considerations we can now understand how the etiological facts mentioned in the first part of this paper, so widely different in their nature can have a common influence in the production of gall-stones. They all have a tendency, by the pathological processes they give rise to, to increase the quantity of poisonous and excrementitious matter in the blood to be eliminated by the depurative action of the liver and so increase the irritative qualities of the bile, and on the other hand to set up in the stomach and intestines organic and functional changes that as we have seen favor the invasion of the bile passages by micro-organisms; thus in a double manner tending to the production of catarrh of the biliary passages and the production of gall-stones.

Discussion.

A. T. BRISTOW: I was very much interested in the paper of Dr. Figueira, more particularly in regard to his remarks concerning the genesis of gall-stones. Naunym, in his work on the subject, makes the following statement: That gall-stones depend for their genesis on two factors; first of all, obstruction to the free flow of bile through the biliary passages; second, infection. Now, I prefer to reverse the order, and place first the infection and second the obstruction, because, as a rule, I believe the obstruction is first caused by the infection and is due to the swelling of the mucous structures involved. Then the obstruction and infection acting together, we have an increase in the inflammatory products and absence of drainage through the natural channels, then the desquamation of the epithelium of the gall-bladder, with the results that Dr. Figueira has already mentioned in the way of increase and deposit and cholesterin. We all know what happens in ordinary crystalline solutions which are near the point of saturation. No crystallization will take place as long as no foreign body is in the solution, but if you hang a thread in that solution very soon the crystals will appear about that thread, as evidenced in the old familiar method of forming rock candy. Now you have exactly the same thing formed in a gall-bladder in which there is impossibility of drainage because of swelling of the mucous membrane of the ducts, plus infection. You have more or less epithelial detritus and about this epithelial detritus the cholesterin is deposited, very much in the same way that the crystals are deposited about the thread hung in a crystalline solution.

The degree of inflammation which attends this process will depend a good deal on the infection. The most common infection of the gall-bladder is, of course, the familiar bacillus coli communis, which is always present in the intestines, and when you have the other pus organisms, such as the aureus or albus, you have an infection which is much more severe, becoming gangrenous cholecystitis as a result of infection with the more virulent organism.

One of the most interesting points with regard to this question of diseases of the gall-bladder associated with gall-stones, is the question of differential diagnosis, which is not always easy. Dr. Delatour, I think, mentioned one case of gangrenous cholecystitis which had been mistaken for acute intestinal ob-

struction. That is not at all an uncommon error, nor is it always necessary that the inflammation shall be of a severity to produce gangrene. I saw a case some years ago in consultation, in which the woman had never had an attack of gall-stone colic in her life nor was there the slightest indication in her history otherwise that she had gall-stones. She was seized suddenly with great tenderness in the abdomen. There was a tumor, persistent vomiting, and obstinate constipation. I saw the case and the examination of the tumor convinced me that we had to deal with an acute empyema of the gall-bladder, and on opening the abdomen we found exactly that condition, a gall-bladder full of pus and much distended, and yet not gangrenous.

One of the common errors in these affections of the gall-bladder is to mistake the so-called biliary fever which appears in all these cases—particularly if they are jaundiced, and very frequently when they are not jaundiced—as the occurrence of an intermittent fever which very closely simulates the specific intermittent fever which is produced by the plasmodium, and if the pain is a little severe and there is slight jaundice with a good deal of vomiting, it is not at all uncommon to see a diagnosis of so-called bilious remittent fever made. I wish that the term malaria could be banished from our medical vocabulary. It has served to cloak more ignorance and been the cause of more mistakes than any other name in our medical vocabulary, when unsupported by the microscope, and it is time that we awoke to the absurdity of this diagnosis. It is just as easy to make an accurate diagnosis of a true malarial intoxication as it is to diagnose Bright's disease. If a blood examination does not reveal the plasmodium, we certainly have not got malarial infection to deal with. On the other hand, and particularly in these jaundiced cases where there is a suppurative process going on in the gall-bladder, a blood examination will always reveal a very marked leucocytosis and fail to show the presence of the plasmodium malarie. Of course it is not always necessary in this intermittent biliary fever for an actual suppurative process to be present, because we may have absorption of the toxins produced by the bacteria which will give rise to an intermittent fever without actual suppuration.

Perhaps the commonest error in the diagnosis of these conditions is to mistake an acute empyema of the gall-bladder for an appendicitis. Richardson of Boston, some two or three years ago, in the *Annals of Surgery*, reported a number of cases in

which the diagnosis of appendicitis had been made, and in two or three of them he had coincided with the diagnosis and cut down and found nothing in the region of the appendix, and then explored the gall-bladder and found an empyema; so he made the statement in his article, if I remember rightly, that where he had cut down on a case supposed to be appendicitis and found nothing in the region of the appendix, the incision was always extended in the direction of the gall-bladder, and he had found the trouble to be in the gall-bladder. An examination of the pelvis in the female would, of course, be necessary to exclude tubal inflammation. Carcinoma is one of the things which may give rise to obstructive jaundice, but in that case there will be the cachexia of carcinoma, and in general terms it may be stated that the longer the jaundice has existed the less probably is it due to carcinoma.

I believe there is no class of abdominal operations attended with less risk to the patient than these operations on the gall-bladder whether there be suppuration or not. Surgeons, as a rule, do not sew the gall-bladder to the peritoneum or the skin, the preferable operation being the introduction of a drainage-tube into the gall-bladder and isolation of the gall-bladder from the general peritoneal cavity by gauze slips, these to be withdrawn at an interval of three or four days. The general peritoneal cavity is then shut off, the gall-bladder is deep in the wound and not adherent, and you have a fistula which closes very much more readily than where the gall-bladder is sewn to the peritoneum or the skin. The method of Kader is also applicable to the gall-bladder and shortens convalescence.

WALTER C. WOOD: My opinion regarding the advisability of operation has changed in the last few years. I think most of us can diagnose an average case of distended gall-bladder due to gall-stones. I think all of us have seen these cases subside without any surgical treatment, with the application of ice, the regulation of the bowels, and the diet. I think all of us have seen those cases have recurrent attacks. Whether we should advise surgery for these conditions depends, I think, upon two things, first, whether we can depend on the acute attack subsiding; second, the danger of the surgery. Some two or three years ago I saw a case of empyema of the gall-bladder reach the stage of a gangrenous cholecystitis. Since that time I have been afraid to trust any well-marked case to empty itself through the natural channels.

The risk of the operation, as stated by Dr. Delatour, I believe can be confirmed by any one who has had experience in the surgery of these cases. In an ordinary patient, with an ordinary attack, the surgery is safe. Certain cases where the stone is impacted in a duct require a second operation. Under those circumstances the operations on the duct have a mortality in a general way of about 16 per cent. Those, however, are cases that would not have recovered spontaneously.

During this last winter I have opened six gall-bladders in women for stones. One was complicated by carcinoma. That case after a few months died as a result of malignant disease. Carcinoma was suspected, but the process was so acute it seemed right to drain the bladder. The others healed promptly. In no case of simple empyema of the gall-bladder where gangrene has not been present and where malignant disease has not been present, have I seen any ill result following the surgery. Dr. Delatour said there was only one case of gangrenous cholecystitis that he had been able to find. That has not been often reported by the surgeon but we find it more often reported by the pathologist. I think that is a point for our consideration.

WILLIAM E. BUTLER: I might report a case of a very large stone, the largest I have ever seen, $3\frac{1}{4}$ inches in diameter, with five facets, which was passed by the patient without operation, after the stone had ulcerated through into the intestine and passed that way. Two or three months afterward the patient had another attack and passed another stone of about the same circumference.

HENRY P. DE FOREST: I may be permitted to substantiate the statement made by Dr. Wood concerning the gangrene and necrosis of the gall-bladder which sometimes occurs. I have had an opportunity of seeing a number of such cases post-mortem, not following a surgical operation, but, as a rule, a sequel of typhoid fever, a not infrequent complication of this disease, and one that should be borne in mind.

In one case the gall-bladder itself had practically disappeared. The only portion of the bladder which remained was that which was directly opposed to the liver: the gangrene had been so extensive that the caudal surface of the bladder had entirely disappeared and was found in shreds scattered in the abdominal cavity.

A MEMBER: I cannot add anything in the way of general discussion of the paper, but the remarks of Dr. Wood call to

mind an experience of mine in a case which I had in the very early years of my practice, of allowing these cases to go and not resort to surgery. It was the case of a young lawyer who had a very sudden and severe attack which I had another doctor see in consultation, and he thought it was simply an acute indigestion, and it went on and cleared up in a few days. Some two weeks later he had a very severe attack, and we also had consultants, and one of his friends in New York, who thought it would probably clear up shortly, but in two or three days he got up a peritonitis and died very promptly. The post-mortem showed that he had had an ulceration through the gall-bladder a small one which had undoubtedly occurred at the first attack, which had walled itself in and healed up; and secondly, a larger one, with evacuation of the bile into the abdominal cavity, causing general peritonitis. In this case also the diagnosis of appendicitis by one of the surgeons of the city was made, but there being no peritonitis, no operation was done.

G. L. KESSLER: I recall a rare case of a tumor near the liver, in which the diagnosis, being doubtful, was made by aspiration. The patient was admitted to the City Hospital, suffering severe pain in the epigastrium, which radiated to the back. Upon examination, a rounded tumor was discovered in the median line and to the right, protruding from under the liver; no pulsation was felt or bruit heard, stools normal color, no bile in the urine. A distended gall-bladder was suspected. An aspirating needle was passed into the tumor, pure blood withdrawn, and the diagnosis of celiac aneurism made. An autopsy, following death from internal hemorrhage, revealed a ruptured aneurism of the superior mesenteric artery; and another of celiac axis, with walls three-fourths inch thick, and intact. There were no signs of injury from the needle.

Floating kidney on the right side has been mistaken for distended gall-bladder. Theoretically, distention of the colon by gas is a simple method of diagnosis, but unfortunately does not always decide the question in practice, as enteroptosis might accompany the former condition.

An unusual cause for cholecystitis not mentioned this evening is intestinal worms. A case of distended gall-bladder was operated upon and an *ascaris lumbricoides* found obstructing the common gall-duct.

A. T. BRISTOW: I had that very point down in my notes, but I felt I had occupied all the time I could justly take. I think

none of the surgeons here would be able to agree with Dr. Kessler on that proceeding, for the reason that it is well known that if you put an aspirating needle into a gall-bladder which is the seat of suppurative inflammation you will be likely to set up a peritonitis. I have seen that happen and I think all will agree that the use of the exploring needle or the aspirator, or the hypodermic syringe in a tumor of the gall-bladder is unjustifiable and attended with the greatest risk. In fact, the use of the exploring needle in any obscure abdominal condition in which you suspect a suppurative process is dangerous. It is much safer to explore with the knife.

DR. MATHIAS FIGUEIRA: I want to join my voice to that of Dr. Bristow in condemning that procedure as a dangerous one and as one that is not warranted by modern surgery or modern books. There was a time when surgeons were in the habit of using the needle indiscriminately. I remember the time when men would put the exploring needle into ovarian tumors, but pathology has taught them better, and they do not do it any more. In regard to the gall-bladder, as Dr. Bristow has stated, you can never be sure but that you may have a septic fluid and you may set up a septic peritonitis, a thousand times worse than the disease which the patient is suffering from, and instead of relieving the patient, by your meddling surgery you do him harm.

DR. KESSLER: In empyema of the gall-bladder we very often get chills and fever, and you may get a distention or a tumor round the gall-bladder, with the usual signs of chills and fever. No one is going to puncture anything that is septic, but you get tumors where there is no pus, and if you do find pus you are going to operate right away; you are not going to wait for sepsis. One of our surgeons in the city, of very good repute, does that thing this very day, and that is Dr. Lewis A. Stimpson. I have seen him do it; and also Dr. James in Bellevue within the last three years, and I never heard of any case they had becoming septic. I do not think if they thought the case was septic that they would put the needle in, but where they thought it to be differentiated between a kidney and a gall-bladder, they have done so, without any bad results that I know of.

THE PRESIDENT: Let us hear from another surgeon.

H. B. DELATOUR: Mr. President, I think, as a rule, we would not puncture a tumor of the gall-bladder. We know that cases of suppurative disease of the gall-bladder do not always give

chills, nor do they give marked fever, and yet produce a tumor by the accumulation of pus. When a needle sufficiently large to withdraw the muco-purulent fluid from a distended gall-bladder is introduced it leaves an opening which is sure to leak. After the abdomen has been opened and the tension relieved by a large syringeful of fluid withdrawn, I have seen leakage of the contents through the small puncture; so I believe personally it is not good practice. Then, again, in cases of simple distension of the gall-bladder with the thin fluid that is sometimes found there, the withdrawal of that fluid is no guide. There is a case on record in which a large ovarian cyst projected up within the region of the liver and was aspirated, and the fluid withdrawn was supposed to have come from the gall-bladder.

In relation to Dr. Warbasse's statement of the danger of the intra-abdominal pressure in the liver cases causing a further opening of the rent and further hemorrhage, I believe in these cases we must, as soon as diagnosis can be made, if the condition of the patient warrant it, make an immediate operation, but I do believe if we make an immediate operation in some of these cases where the diagnosis is clear, that we may lose our patients. If, as in one instance already reported by me, the operation had been performed at the time of the patient's arrival in the hospital, when the diagnosis of intra-abdominal hemorrhage was clear, I believe the patient would have died. The use of the abdominal binder, by increasing the intra-abdominal pressure from without, I believe will limit the amount of hemorrhage and the patient can be stimulated during that time and gotten into a better condition for operation.

Dr. Maddren's point as to suturing of the gall-bladder to the skin: I believe it is seldom the custom of surgeons to-day to suture the gall-bladder outside of the peritoneum. If suture is made, it is made to the peritoneum and posterior layer of fascia and not to the muscle or skin. Either that, or the simple suturing of the drainage-tube into the gall-bladder, as described in my paper and mentioned by Dr. Bristow, is followed by a very prompt closure of the fistula. I never had but one case that persisted after the withdrawal of the drainage, and that was a case in which I had removed a number of stones from the gall-bladder and subsequently removed four stones from the common duct, and searching in the hepatic duct got two more. In that case the fistula did not close. The woman lived some six or eight months and

at post-mortem almost every ramification of the smaller bile-ducts within the liver had little stones stored away in them.

Intestinal obstruction is a very common occurrence in connection with inflammation of the gall bladder and it is due in some cases to distinct adhesions forming between the colon and the intestine, and in other cases it seems to be due to the intestinal paralysis which develops in conjunction with peritonitis. It may also occur where a large stone has ulcerated into the intestine and is arrested at the ileocecal valve.

I think I was correct in saying that so far there is only one reported operated case of gangrene of the gall-bladder appearing in literature. Other cases undoubtedly have been found post mortem, but I think Doctor Hotchkiss is the only man who ever operated for gangrenous inflammation of the gall-bladder.

There is one other point; in examining the gall-bladder for tumor it is important to remember that there is sometimes projecting from the lower edge of the liver a tongue-like process. I had not seen an example of this until yesterday. In this case there was a distinct process projecting down from the lower edge of the liver about opposite the tenth rib and internally to it could be felt the distended gall-bladder. It was a case of extreme jaundice, undoubtedly due to the presence of gall-stones. In this case the liver projection was a thin fleshy mass that you could pick up with the fingers through the thin abdominal wall and easily distinguish what it was.

DR. PEARSON: I was a little disappointed at not hearing more said about the indications for operation. We know as people grow older, especially women, it is not an uncommon thing for them to have gall-stones which give rise to few symptoms, and I believe in many autopsies they find them where the patient complained of no colic at all. There are some cases, of course, that should be operated upon, and some that should not; What cases demand it? We expect in some cases that the stones will pass and always hope for that. I remember very well a case I had some years ago in which the pain was persistent. I advised an operation, but the patient wanted someone else to see it, and I thought that would be a very good idea, but the man that was called in unfortunately was not of the opinion that an operation should be done. We put it off for three days, I think, and on operating found gangrene of the duct. There was a stone lodged in the duct, and the duct became gangrenous. The patient died. In that case the pain was very severe and persistent.

I think if I had another case of the same kind, where after 10 or 12 hours the pain did not abate, I would operate. I should think that would be one indication—persistent, severe pain. I should like to be enlightened on indications for operation.

MATHIAS FIGUEIRA: Doctor Delatour in speaking of intestinal obstruction in connection with gall-stones puts me in mind of another cause that the Doctor did not mention, and that is obstruction of the intestine by the size of the stone. Cases have been reported in which the stone after ulcerating through the intestinal wall from the gall-bladder, has produced death by intestinal obstruction.

I want to relate a case which is very interesting, in which the gall-stone produced intestinal obstruction which was not discovered until the post mortem. It was a case of annular cancer of the colon close to the sigmoid flexure. The patient complained of pain but the symptoms were not marked, when one day she was suddenly taken with symptoms of intestinal obstruction. The abdomen was opened and the cause of the obstruction sought but not found. The patient was very weak and the abdominal wound was closed and she died. At post-mortem it was found that a round gall-stone had come down and like a ball in a valve had closed the intestine completely and produced the woman's death. Now in regard to the indications for operation in cases of gall-stone, I believe we all find these cases pretty well divided into classes. They come to us with symptoms of jaundice, of intestinal catarrh, of dark urine, of white fæces, with the history of previous attacks, and under treatment they improve. They improve under care, under mineral waters, under change of climate and regulation of diet; they gradually get well and pass off without any operative interference; but there are other cases taken with acute symptoms of gall-stone that do not improve. The pain abates sometimes or not at all, like in the case the Doctor mentioned; they have a poor pulse, with fever, distention of the abdomen, increasing tenderness and grave symptoms. Now this is the class of cases in which the surgeon should be on the watch and if they do not readily improve, then I think the proper thing is to operate right away. Then again there is another class of cases in which the attacks occur often, the patient is miserable all the time, and the disease runs a long course with symptoms of obstructive jaundice and gall-stones. In these cases I think it is proper to operate. So there is a line to be drawn between the cases that are mild, the cases that im-

prove under treatment, and the acute cases and the chronic cases. I believe that acute cases with grave symptoms that do not improve readily should be operated, and also chronic cases after proper medical treatment fails. But I do not believe in subjecting every case of colic with jaundice to immediate operation.

HENRY P. DE FOREST: We have heard a great deal of what surgeons can do to relieve these various pathologic conditions of the gall-bladder. I should like to add a word as to the possibilities inherent in nature. I have seen two cases in which nature had effected a partial cure in a rather unusual way. In one case gangrene of the gall-bladder occurred on the side next to the liver; a portion of the liver tissue became necrotic, and within the substance of the liver on the upper side of the right lobe appeared a tumor which was opened and a stone removed from the interior of the liver, the lower surface of the gall-bladder remaining intact.

In another case there was a primary condition similar in some particulars to the one just related, but adhesions occurred between the gall-bladder and the hepatic flexure of the colon immediately adjacent. The septum between the two, after adhesions had firmly formed, became gangrenous and through the gangrenous area a gall-stone was discharged into the large intestine, passed and was found in the stool and was preserved. It was supposed at the time that the relief of the colic which had occurred was caused by the passage of this gall-stone through the duct in the usual way. Three months later the woman died of an aneurism of the abdominal aorta. The autopsy showed the way through which the stone had been discharged. The gall-bladder had collapsed, was entirely empty and was still adherent to the transverse colon, and the hole through which the gall-stone had escaped into the colon still remained, with the edges healthy and well healed.

JAMES P. WARASSE: The question of wounds of the liver and gall-bladder is one which can be dealt with but in a general way in a paper of twenty minutes. Many cases might be cited to corroborate the statements which I have made. My own personal experience in operating upon cases of wounds of the liver has been peculiar, in that in all the cases of wounds of the liver upon which I have operated the operation has been done for some other complication of greater importance. Thus in gunshot wounds of the liver complicated by penetrating wounds of the intestine or the stomach the liver wound is a small penetrating

wound, and its seriousness is slight compared with that of the complicating injuries. I have encountered a case of rupture of the liver associated with laceration of the intestines; and in this case, although there was some bleeding from the liver wound, it was a matter of secondary importance; and this has been my own general experience. This is also the experience of those observers whose statistics I quoted, showing the large proportion of complications in wounds of the liver.

The hemorrhage, of course, is the serious feature in a liver wound. The wound is a matter of little consequence aside from the acute anemia to which it gives rise; and it is for this condition that we must operate. It must be placed upon the same level as intra-abdominal hemorrhage from any source.

The use of saline infusion, referred to in the paper, is something upon which I would lay especial stress, as in this we have a means of saving many lives which would be lost if only the ordinary methods aside from this are resorted to. In a recent case of intra-abdominal hemorrhage I had forty-two ounces of saline fluid introduced into the veins of the arm and saw an almost imperceptible pulse come down to a strong pulse of 110; and recovery take place. This is a therapeutic measure of inestimable value.

The subject of inflammation of the gall-bladder has been pretty thoroughly gone over. One of the gentlemen has spoken of the differentiation between floating kidney and enlarged gall-bladder, either from pus or bile, and commented upon the difficulty of the differentiation. Surely this is not a difficult matter when we consider that the kidney lies posterior to the peritoneum and in its becoming detached and movable about the abdomen has in front of it the peritoneum and must lift up in front of it the large intestine. The simple expedient of distending the large intestine with gas, if it is not already distended, clears up the difficulty: the floating kidney is found to be posterior to the distended gut, whereas the gall-bladder lies in close juxtaposition with the liver and the anterior abdominal wall.

The differentiation between inflammation of the gall-bladder and appendicitis is often a matter of some difficulty. I have operated upon cases of acute cholecystitis which have been sent to the hospital with a diagnosis of appendicitis, and in some of which the diagnosis could not positively be disputed until the exposure of the gall-bladder disclosed the cholecystitis.

I have made cultures from the serum lying outside of the gall-

bladder in a case of cholecystitis, in which the gall-bladder had been infected by the common colon bacillus, and in which there was no perforation but simply the interstitial inflammation of the wall of the gall-bladder, and following that the localized inflammation of the peritoneum lying over the gall-bladder, and with the accompanying exudation of serum about the gall-bladder. In this serum I found the common colon bacillus precisely as I have in cases of appendicitis of this same character, that is, appendicitis with localized peritonitis without any perforation, showing that there is a migration of these micro-organisms through the unperforated wall of these viscera. In a discussion some time ago before the Surgical Society I called attention to this very thing, the similarity of cholecystitis to appendicitis; for when we come to think of it we have to deal with organs which are similar in many respects; indeed the chief thing to modify their pathology is the difference in the blood supply, which in the case of the gall-bladder is not so susceptible to the grave disturbances which may take place in the appendix.

Intestinal obstruction accompanying cholecystitis, to which Doctor Delatour has alluded, has come under the notice of most surgeons. It may be apparent or real. The last case of cholecystitis upon which I have operated was sent to the hospital for the relief of some intestinal obstruction producing condition. There was no lesion of the intestine and no intestinal obstruction other than intestinal adhesion to the gall-bladder. In this particular case there was a general rigidity of the whole anterior abdominal wall; there was a rigidity of the muscles of both the right and the left sides, and an exquisite tenderness over the whole upper abdomen, but no lesion outside of those mentioned. The involvement of a small area of intestinal wall in the inflammation causes a paralysis of that portion of the gut, and the symptoms of a more or less complete obstruction.

Concerning the actual obstruction of the intestine following disease of the gall-bladder, the President of this Society has within the last year to my knowledge operated upon a case of acute intestinal obstruction in the small intestine, in which the obstruction was due to a large biliary calculus which had passed into the intestine and become tightly impacted. This was removed by a longitudinal incision through the intestinal wall, the wound closed and the patient conducted to a successful recovery.

Concerning the removal of stones from the gall-bladder we have all had variable experiences. In my experience it has been

easy enough to remove all the stones from the gall-bladder except the last one. The last stone is usually the obstructing stone and is often found impacted in the cystic duct, and may escape the examining finger. Inside of the gall-bladder it is very difficult sometimes to palpate this stone; we may discover it by passing the finger down the outside of the gall-bladder. It may sometimes be squeezed back and sometimes be pushed forward. When this cannot be done the surgeon must resort to the expedient of making an incision in the cystic duct and removing this last stone through such an incision.

A peculiar feature of these cases of cholecystitis which comes to my mind is this: Upon opening a distended gall-bladder, clear viscid bile, which presents all the appearances of perfectly normal bile, is discovered; but after sponging this out in large quantity the surgeon next comes down upon calculi and among these calculi is found pus. Thus there is presented the peculiar condition of two different sorts of fluid existing in the same receptacle and yet not having become intermingled. I should like to hear the experience of some of the other gentlemen upon this subject. It has only occurred to me now, but I recall cases in which this condition has existed. The pus and the bile seemed clearly separate; and it appeared as though one fluid were floating upon the other.

Concerning the matter of aspirating these tumors for diagnostic purposes, as has been suggested by a previous speaker, that is something which interested the surgeons of former times, but with which we at this present day are not concerned.

THE BROOKLYN MEDICAL JOURNAL.

Communications in reference to Advertisements or Subscriptions (Subscription Price \$2.00 per annum) should be addressed: Business Manager, BROOKLYN MEDICAL JOURNAL, 260 Hancock Street, Brooklyn, N. Y.

Exchanges should be addressed: BROOKLYN MEDICAL JOURNAL, 1313 Bedford Ave., Brooklyn, N. Y.

Books for Review and Articles for Publication should be addressed: BROOKLYN MEDICAL JOURNAL, 1313 Bedford Ave., Brooklyn, N. Y.

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EDITORIAL.

Temperance Teaching
in the
Public Schools.

This subject is one which, since the publication of Prof. Atwater's experiments a year or so ago, has been more or less prominently discussed in journals both professional and lay. Foremost among the opponents of the practice has been the editor of *The Outlook*, who holds the opinion that it is not the function of public schools to teach what some individuals regard as a "moral reform," while others do not, and that even if all were agreed upon this point, it is illegitimate for the schools to teach a reform under the guise of teaching physiology. The discussion which was very active last year between *The Outlook* and the Woman's Christian Temperance Union has been again revived by a review of a new edition of Dr. Jerome Walker's "Anatomy, Physiology and Hygiene," published in *The Outlook* in November. This book we have read very carefully and are ready to compliment the author on the admirable manner in which he has presented the subject of alcohol wherever he has touched it. As a physician and as a scientific man he could not have ignored the results of the experiments of scientific men, carried on with the most approved apparatus and in the light of modern science; of

course, Dr. Walker knew as well as any one that whatever else his book might contain, one sentence alone would condemn it in the eyes of the temperance fanatics who are determined to teach the rising generation that alcohol in any form, in any amount and under all circumstances is to be regarded as a poison, and to be placed in the same category with arsenic and strychnia. The sentence to which we refer is that "In a small amount it (alcohol) may act as a partial food, like starch, sugar, and fat, by affording energy." The fact is that scientific men made a mistake when they did not oppose tooth and nail the beginning of this pernicious legislation by which the state undertakes to dictate what textbooks in the schools shall contain. The same indifference would have given us anti-vaccination laws as numerous as those requiring temperance teaching, which are now in force in most of the states of the Union; laws which would spread smallpox over the country as generally as is now spread this erroneous, so-called physiological teaching that alcohol is never a food. We hope that the time will come when such abuse of legislative power will be corrected and the truth will be taught irrespective of the apparent effect it will have; for however desirable temperate living may be, any sacrifice of truth, however noble may be the motives which inspire it, cannot but result in a reaction when the true facts become known which will make sceptical as to all truth those who have been the victims of deception.

We suppose that one statement made by the Woman's Christian Temperance Union in convention assembled is seriously made, but if it occurred in any other than an official document we should be inclined to regard it as a bit of exquisite sarcasm. It is that the various legislatures that have passed the temperance acts have appointed on their committees of education "members who have had educational experience," "hence, men of sound pedagogical knowledge as law-makers."

Readers who are interested in this subject will find the matter in full in *The Outlook* of November 17, and December 22, 1900.

**Rabies
and
Hydrophobia.**

It was not uncommon some years ago to find men in the medical profession who regarded rabies in man as a myth; while they were willing to accept its existence in dogs, they were sceptical as to its ever occurring in the human subject. Cases which were pro-

nounced rabies or hydrophobia, the two terms being used synonymously, were attributed to epilepsy, cerebritis or paralysis, and even to so slight an ailment as indigestion. Even in the veterinary profession the occurrence of rabies in dogs is regarded as extremely rare, one writer going so far as to say that not one dog in a million supposed to be rabid is really affected with that disease. If no harm came from the holding of such ideas, they would hardly be worth combating, but as a result of these erroneous beliefs, the killing and muzzling of dogs for the suppression of rabies are regarded as cruel and unnecessary, and thus the disease is still more widely disseminated and human lives sacrificed that might have been saved.

We commend to all interested in this subject a paper read by Dr. D. E. Salmon, the well-known expert, on "Rabies and Hydrophobia," before the American Veterinary Medical Association at Detroit, Mich., in September last. In this paper Dr. Salmon gives an interesting historical résumé of the disease from the time of Aristotle to the present day. He tells us that it is far more prevalent than is generally thought; in Germany, there were in 1898, 1,202 cases of rabies in animals; in France, 2,374 cases in 1899, and in Belgium, 444 cases. In Great Britain during 1895 there were 727 cases, and the same year 1,397 in Hungary. Unfortunately the records in the United States are very incomplete, but reports from the various state veterinarians show the disease to be all too prevalent in this country, New York, Boston, Chicago, Columbus, Philadelphia and other cities having had more or less cases. In the District of Columbia alone there were 19 cases in 1899, and in 1900, to July 31, 29 cases. Since 1897 in the District seven persons have died from rabies.

Dr. Salmon is an ardent advocate of muzzling dogs, and demonstrates most conclusively that by this practice rabies may be practically eliminated. He shows by statistics of Berlin that from an average of thirty-five cases a year in this city no case occurred in a period of seven years. In Great Britain the results of the practice of muzzling have been phenomenal. So striking are the facts that we quote in full from his paper. He says: "The number of rabid dogs officially reported was in 1887, 217; 1888, 160; 1889, 312. In the last mentioned year muzzling was adopted, and the number of cases fell to 129 in 1890, 79 in 1891, and 38 in 1892. Then, owing to persistent opposition, muzzling was stopped, and the effect of withdrawing this measure was at once seen in the increase of rabies. In 1893 there were 93 cases, in 1894,

248, and in 1895, 672. At this point, owing to public alarm, muzzling was again enforced, reducing the number of cases in 1896 to 438, in 1897 to 151, and in 1899 to 9. As no case was discovered from November, 1899, to March, 1900, it was believed by the veterinary officer that the disease had been extinguished in Great Britain." A more complete demonstration of the efficacy of a remedy it would be difficult to find.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Tuesday, December 18, 1900.

The President, Lewis S. Pilcher, in the Chair.

There were about one hundred members present. The minutes of the previous meeting were read and approved.

REPORT OF COUNCIL.

The Council reported favorably upon, and recommended for membership, the following: John J. Carey, L. I. C. H., 1892. P. J. Murry, Bellevue, 1895. Fergus J. McDonough, L. I. C. H., 1899. Chas. E. Scofield, P. & S., 1899. W. J. Lippelt, L. I. C. H., 1896. Paul L. Parrish, Bellevue, 1898.

ELECTION OF MEMBERS.

The Council, having reported favorably upon the name of Dr. Ernest Schalck, Wirtzberg, 1884, he was declared by the President elected to membership.

APPLICATIONS FOR MEMBERSHIP.

Howard J. Seeley, 151 Stuyvesant avenue, L. I. C. H. Nominated by Geo. McNaughton; seconded by William Browning.

Wm. Cavan Woolsey, 29 Lafayette avenue, P. & S., 1898. Nominated by J. M. Winfield; seconded by C. F. Barber.

Harold C. Brewster, 545 Franklin avenue, L. I. C. H., 1898. Nominated by John R. Stivers; seconded by J. McF. Winfield.

Howard B. Snell, Long Island College Hospital, L. I. C. H., 1899. Nominated by Geo. McNaughton; seconded by William Browning.

E. W. Carhart, 283 Penn street, Albany Medical College, 1878. Nominated by Jacob Fuhs. Seconded by J. P. Warbasse.

William H. Biggam, 1197 Dean street, P. & S., 1892. Nominated by William Waterworth; seconded by Charles Dwight Napier.

Cameron Duncan, 201a Sixth avenue, Bellevue, 1898. Nominated by H. P. de Forest; seconded by Sewall Matheson.

Richard Taylor, 1275 Bedford avenue, University of Pennsylvania, 1878. Nominated by H. P. de Forest; seconded by G. W. Colby.

Benjamin F. Corwin, 587 Avenue F., Vandever Park, Yale, 1897. Nominated by John A. Lee; seconded by Victor L. Zimmerman.

SCIENTIFIC BUSINESS.

Tuberculosis of the Genito-urinary System.

I. "Tuberculosis of the Kidney, with Methods of Diagnosis." By Dr. John Von Glahn.

II. "Tuberculosis of the Bladder." By Dr. H. E. Fraser.

III. "Tuberculosis of the Testicle, Prostate, and Seminal Vesicles." By Dr. H. H. Morton. Discussion by Drs. A. T. Bristow, G. A. Evans, L. S. Pilcher, Von Glahn, Fraser, and Morton.

NOMINATIONS OF OFFICERS AND DELEGATES.

The following names were placed in nomination:

For President—Lewis E. Pilcher, William Browning.

For Vice-President—Henry A. Fairbairn.

For Secretary—David Myerle.

For Associate Secretary—William S. Hubbard.

For Treasurer—O. A. Gordon.

For Associate Treasurer—John R. Stivers.

For Librarian—J. M. Winfield, Heber N. Hoople, William Browning.

One (1) Trustee—George R. Fowler, C. F. Barber, Charles N. Cox.

Five (5) Censors—James P. Warbasse, John E. Sheppard,

Francis S. Kennedy, Walter C. Wood, Robert J. Morrison, J. M. Van Cott, Victor A. Robertson, A. C. Brush, H. B. Delatour.

Twenty-one (21) Delegates to the New York State Medical Society—Frank W. Shaw, Walter A. Sherwood, Thomas B. Spence, P. H. Sturgis, Arthur H. Bogart, Archibald Murray, H. G. Webster, Charles H. Goodrich, E. L. Oatman, W. G. Reynolds, William F. Dudley, W. L. Rickard, Charles B. Bacon, John R. Stivers, James C. Hancock, E. E. Cornwall, Charles C. Henry, Geo. W. Colby, W. N. Belcher, A. C. Howe, Clarence R. Hyde, Heber N. Hoople, R. H. Pomeroy, Warren S. Shattuck, O. A. Gordon, Raymond Clark, Thomas E. Craig, Mathias Figuera, H. E. Fraser.

AMENDMENTS TO BY-LAWS.

The President recommended that the by-laws be amended, first, so as to include in the list of Standing Committees, the Committee on Public Health and the Committee on Legislation; second, that the Standing Committees be represented in the Council of the Society, by making their respective chairmen members of that body.

The proposed amendments are as follows:

Chapter XIII. THE COUNCIL.

Section 1. After the words, "The officers of the Society," introduce the words, "and the Chairmen of the Standing Committees," so that the section shall read:

"The officers of the Society and the chairmen of the standing committees shall constitute the Council."

Chapter XX.

Section 1, by adding to the list of Committees the following:

5. Legislation.

6. Public Health.

Section 2. After the words, "three members each," insert: "with the exception of the Membership Committee, which may be increased by the addition of as many more members as in the judgment of the President may conduce to the better discharge of its duties."

Add the following new Section to Chapter XX.:

"Section 7. The Committee on Legislation shall keep itself acquainted with all proposed legislation which may affect the medical profession, and shall watch over the interests of this Society as far as may be involved in legislative enactments or municipal ordinances. To it shall be referred for consideration

and report all matters brought before the Society which may pertain to or involve legislation."

COMMUNICATION FROM COUNCIL.

The Secretary stated that the council had received a report from the Board of Trustees concerning liens which were filed against the Society immediately following the failure of the contractor who erected the building; that they amounted to between \$6000 and \$7000; that suits were begun against the Society by various subcontractors and the Society's defense was placed in the hands of Mr. Johnson of Johnson & Lamb; that the Trustess turned over to him \$3100, which they had withheld for the completion of the building. Mr. Johnson has succeeded in cancelling all the liens with this \$3100, and has so stated in a communication to the Society. For this excellent service he has enclosed a bill for legal services, fixing it at a minimum amount, and asks that it be accepted from him as a donation to the Society.

On motion, a unanimous vote of thanks was tendered to Mr. Johnson for his efficient services and his generous donation of the same to the Society.

The Secretary further stated that strenuous efforts had been made through various channels to obtain for the Library of the Society the medical works belonging to the Long Island Historical Society, and that to Dr. J. H. Raymond belonged the credit for the successful negotiations in regard to the same. The Secretary read the communication from the Chairman of the Committee of the Long Island Historical Society offering to loan the nine hundred books, six hundred pamphlets, and the twelve hundred periodicals, and have them placed on the shelves of the Medical Society of the County of Kings on condition that a suitable book-plate be put in each book stating that it was loaned by the Long Island Historical Society; and that they may be adequately covered by insurance. The Secretary stated that the Council recommended that this offer be accepted.

Dr. Maddren moved: That the loan of these books, pamphlets, and periodicals from the Long Island Historical Society be accepted, and the Secretary be instructed to express to the Long Island Historical Society the thanks and appreciation of this Society for the same. (Motion carried.)

On motion a unanimous vote of thanks was tendered to Dr.

J. H. Raymond for his efforts in the procuring of these books from the Long Island Historical Society.

The Secretary reported that numerous complaints had been received of illegal practitioners in the Borough of Brooklyn, and that by direction of Council he had forwarded such complaints to the Department of Health who had taken them up and would prosecute them to the full extent of the law. The correspondence between the Secretary and the Department was read, covering the various cases. The Secretary further stated that one of the institutions had been closed after the complaint was made, and that the Council were doing all in their power to remedy this evil.

REPORT OF COMMITTEE ON LEGISLATION IN REFERENCE TO CARE
OF HABITUAL INEBRIATES.

Dr. George W. Brush reported for this Committee, that they had conferred with the Committee of the Neurological Society and the two committees had agreed, with slight modifications, upon the provision contained in Senate Bill No. 518, entitled "An Act to provide for the treatment of all persons diseased, incompetent, or dangerous from the use of alcoholic stimulants, etc.," which was introduced by Dr. Brush and passed in the Senate in January, 1898, but failed to pass the House; and recommended that the Society endeavor to have this bill or one similar to it again introduced, as the best solution of the problem of the care of the habitual inebriate.

The President stated that the bill would be printed and the matter come up for the endorsement of the Society at the next meeting.

NEW BUSINESS.

Dr. F. S. Kennedy offered the following resolutions in reference to the preparation of the ballot for the annual election of officers:

Resolved, That when a regular nominee for a given office declines to accept said nomination, his name shall be omitted from the printed ballot as a candidate for such office.

Resolved, That in preparing the printed ballot for the annual election, the names of the nominees for any one office shall be placed in a single column, and in the order of nomination. This

is to apply to all offices, except that of the Delegates to the Medical Society of the State of New York.

On motion, these resolutions were unanimously adopted.

On motion adjourned.

ROBERT J. MORRISON,
Associate Secretary.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Annual Meeting, January 15, 1901.

At the annual meeting the following were elected: President, William Browning; Vice-President, Henry A. Fairbairn; Secretary, David Myerle; Associate Secretary, William S. Hubbard; Treasurer, O. A. Gordon; Associate Treasurer, John R. Stivers; Librarian, J. M. Winfield; Trustee, George R. Fowler; Censors, James P. Warbasse, John E. Sheppard, Walter C. Wood, Robert J. Morrison, J. M. Van Cott; Delegates to Medical Society of the State of New York, William B. Brinsmade, Walter A. Sherwood, H. G. Webster, Charles H. Goodrich, E. L. Oatman, W. G. Reynolds, William F. Dudley, W. L. Rickard, Charles B. Bacon, John R. Stivers, James C. Hancock, E. E. Cornwall, Charles C. Henry, W. N. Belcher, A. C. Howe, Clarence R. Hyde, Heber N. Hoople, R. H. Pomeroy, W. S. Shattuck, H. E. Fraser, John A. Lee.

BROOKLYN GYNECOLOGICAL SOCIETY.

Stated Meeting, March, 2nd, 1900.

The President, DR. R. L. DICKINSON, in the Chair.

SPECIMEN:

UTERINE FIBROID DEVELOPING SEVEN YEARS AFTER TREATMENT OF
A SMALL UTERUS FOR ANTEFLEXION.

Dr. Geo. McNaughton: I presume this specimen is of more interest to me than to anyone else, because it is one of the cases I reported five or six years ago, a woman who developed a

fibroid in an anteflexed uterus. I treated her when there was no sign of the fibroid whatever. She had a rather small uterus and she suffered from the usual symptoms, dysmenorrhea, etc. She was a strong, vigorous, healthy woman, and finally she developed this fibroid, which has been growing for seven or eight years. Tuesday I removed it with one ovary and left the other in the peritoneal cavity as it appeared to be in good condition. This is the uterine cavity (indicating). I do not know that I have ever seen such a looking specimen. I hold the uterus in my hand; this is a sub-mucous fibroid, and the others are sub-peritoneal. Her present condition is favorable.

STENOSED CECUM ; REMOVAL.

This is from a woman who had suffered more or less disturbance about the cecum for several years which was gradually growing worse, until she finally came into the hospital, presenting a tumor of the cecum.

A presumable diagnosis of malignant disease of the cecum was made and on abdominal section the diagnosis was confirmed; attached to the cecum was a loop of the ileum which was also involved in the cancerous mass; as the loop was some distance from the cecal end of the small intestine, it was removed and an end to end anastomosis made by means of a Murphy button. The cecum, as well as a portion of the ileum, which was also diseased, was the next removed, care being taken to remove all the infected tissue. The lower portion of the ascending colon was pouched by inversion and reinforced by a purse string suture. A Murphy button was then made to connect the pouch with the terminal ileum, in this instance making an end to side anastomosis. The patient lived six days, passed gas and her bowels were moved. Autopsy refused, but I suspect that a perforation had taken place. There was no trouble inserting the button and I am quite sure the peritoneum remained clean during the operation. It may be questioned whether the insertion of two buttons was a wise procedure, it perhaps would have been better to have made some other kind of anastomosis in the ileum, for I suspect that would be the button to first free itself and in this way a strife between the buttons for first place might occur with possible disastrous consequences.

ECTOPIC GESTATION COMPLICATED WITH APPENDICITIS.

The patient who furnished this specimen is about 25 years old.

She menstruated on the 12th of November, was married on the 19th, and since that time had no sign of menstruation or any flow. About the middle of January, while she was carrying a scuttle of coal, she was taken with severe abdominal pain and fell. She finally succeeded in getting into bed and they called a physician, Dr. Myérle, who made a diagnosis of probable ruptured tubal pregnancy, which proved to be correct, but her symptoms improved so much that nothing was done until the 12th of February, when she had more pain and developed a rise in temperature. It was concluded best to do something in way of operation so she was removed to the Eastern District Hospital and operated on. It was found that the diagnosis of ectopic pregnancy was correct and in addition she had an acute appendicitis; really the symptoms of appendicitis were what determined the operation,—the fever which she had, the increased pain, the obstruction of the bowel and all of the ordinary signs of appendicitis, but which we did not recognize as an appendicitis, because of this other trouble which was perfectly distinct. The clot was removed; rupture had taken place; there was some free blood in the peritoneal cavity, and after that was cleared out we discovered that the appendix was in a condition of acute inflammation and that there was a perforation. The patient developed a bronchial pneumonia and had rather a hard time, but is now convalescent.

Dr. Dickinson: "A Symposium of Office Gynecology" is now presented to the society for the evening program, comprising several five-minute papers on the subjects allotted to the writers.

The idea of this discussion is two-fold,—first the utility of discussing among ourselves those little practical every-day devices that one man can teach another; and second, the very great practical utility of the publication of such discussion in a general Medical Journal going among general practitioners. It seems that there is a considerable class of questions of importance which are not discussed in the books or the literature. They are so small in the eyes of the author as to be overlooked, and yet they are of vital and every-day importance. I am sure there are a great many points that are not in Dr. Jewett's book that I learned from seeing him work, and I may say the same of every man with whom I come in contact; each can teach the other these little practical things that are seldom written. I never attend a consultation or see a man operate that I do not get a great many little details.

These questions that we are to discuss are the personal devices and the practical every-day matters in office gynecology.

OFFICE GYNECOLOGY.

1. In general practise. Dr. Ralph H. Pomeroy.
2. Office outfit. Dr. Clarence R. Hyde.
3. Bimanual and speculum examinations. Dr. L. Grant Baldwin.
4. Bladder and Rectal examinations. Dr. John O. Polak.
5. Local Applications. Dr. W. P. Pool.
6. The field for Pessary Treatment. Dr. Chas. Jewett.
7. Hours; Nurses; Office plans; Pelvic massage. Dr. R. L. Dickinson.

(To be continued.)

HISTORICAL DEPARTMENT.

 WRIGHT POST, M.D.

Born at North Hempstead, Long Island, on the 19th of February, 1766, and died, June 14th, 1828. His early education was received under the tuition of David Bailey in his native town, and at the early age of fifteen he became a student of medicine under the preceptorship of Richard Bailey, M.D., of New York City. During the years from 1784 to 1786 he was in London in attendance upon lectures and hospitals; in 1787 he returned to this country and began to deliver his lectures on anatomy in the New York Hospital. The occurrence of the Doctors' Mob about this time—1788—put a stop to these lectures.

In 1792 he was Professor of Surgery in Columbia College, and from 1793 to 1813, Professor of Anatomy and Physiology, upon the union of the Medical Faculty of Columbia College with the College of Physicians and Surgeons in 1813. Dr. Post was appointed joint Professor of Anatomy, Physiology and Surgery in 1822; he was appointed President of the College in 1822; resigned in 1826.



WRIGHT POST, M.D.



ALFRED C. POST, M.D., LL.D.

The University of New York conferred upon him the honorary degree of M.D. in 1814.

From 1816 until his death in 1828 he was a member of the Board of Trustees of Columbia College, and for thirty years Surgeon to the New York Hospital. As a teacher of anatomy he was not excelled by any in this country.

ALFRED CHARLES POST, M.D., LL.D.

Born in the City of New York, January 13, 1806, where he died, February 7, 1886. He was the son of Joel Post, a merchant of New York.

He entered Columbia College in 1819 and graduated A.B. in 1822. The study of medicine with his uncle, Wright Post, M.D., as preceptor, and his matriculation with the College of Physicians and Surgeons, were the beginning of a most successful professional life, devoted to the Art and Science of Surgery, graduating M.D. in 1827, the University of the City of New York conferring the degree of LL.D. upon him in 1872.

Having visited Europe for the purpose of perfecting himself in the large hospitals of England, France, and Germany, as was the custom in those days, he returned to New York in 1829. The same year he received the appointment of House Surgeon in the New York Hospital; in 1832, Demonstrator of Anatomy in the Hospital; in 1833, Surgeon to the New York Eye and Ear Infirmary; in 1836, Surgeon to the New York Hospital; in 1842, Professor of Ophthalmic Surgery—University of Vermont, Medical Department; 1843, Professor of Surgery in the same and in 1851, Professor of Surgery, Medical Department, University City of New York; in 1875 he became Emeritus Professor of Surgery and President of the Faculty; Demonstrator of Anatomy, College of Physicians and Surgeons, New York, 1831-34. His contributions to medical literature were many and are well-known to the profession. He was a member of the New York County Medical Society, New York State Medical Society—President in 1851; New York Academy of Medicine; President, 1867-68, New York Pathological Society, and President of the Society for the Relief of Widows and Orphans of Medical Men.

During the years 1835-36 he was in practice in the City of Brooklyn, his office being at 125 Willow Street, and was a member of the Medical Society, County of Kings, of which he was Secretary in 1836.

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

CALOT (F.). Les maladies Qu'on soigne à Berck. Abscès froids, adenites, osteïtes, tumeurs blanches, coxalgie, mal de Pott, scoliose, luxation congénitale de la hanche, pied bot, etc. Paris, C. Masson, 1900, 443 p. 12°.

This work is a plea for what the author claims to be the most rational treatment of certain tuberculous surgical lesions, to which are added short chapters upon scoliosis, conjunctal dislocation of the hip, clubfoot, infantile paralysis, paralytic clubfoot, Little's disease, diseases of the eye, throat and ear, and chlorosis and chloranemia. As its title indicates, it is a résumé of the methods pursued at Berck sur mer by the author.

The author makes the assertion that external tuberculosis is always cured by proper general treatment combined with rest of the diseased organs. As a feature of the treatment of closed tubercular foci an earnest plea is made against the open treatment of the latter. The assertion is made, in support of this plea that, whether the bacillary focus is opened operatively or ruptures spontaneously, the gravity of the disease is increased a hundred fold because of the occurrence of secondary infection, experience showing that this association of primary bacillary and secondary suppurative infection is very much more difficult to cure than the former when it exists alone. The suppurating osteïtes, tumor albus, coxalgia and Pott's disease formerly terminated fatally invariably in his experience at Berck, in spite of the resources of marine treatment, and notwithstanding the use of antiseptics in so far as the latter were applicable. He asserts that these are always cured at Berck at the present time, this reversal of the former experiences being due to the fact that, whereas formerly they were always subjected to operative interference, at the present day the tuberculous foci are never opened. The old adage, "Ubi pus, ubi evacua," according to Calot, does not hold true as relating to these lesions; for, while it is safe and proper to open an acute abscess, it is disastrous to open a cold abscess, in the opinion of our author, a course still pursued by practitioners, nevertheless. This mistake, made in the most thoughtless manner, he asserts, only too often curtails the death of the patient from profound tuberculous infection. This result occurs at so remote a period that

the relation of cause and effect is lost sight of, and the practitioner escapes blame. This relation exists, in the author's opinion, nevertheless. So firmly is this idea fixed in his mind that it is reiterated again and again throughout the book, and the *raison d'être* of the latter is expressed in this sentence, which occurs in the introduction: "If this book serves to make this clear to the eyes of all practitioners, it will have served its purpose and saved many human lives."

There are many surprising, not to say wild and rambling statements made in the book, most of which one is felt called upon to deal with gently on account of the high attainments of the author and the evident extreme degree of enthusiasm which possesses him. That the views advanced are extremely radical no one can deny; that they are to be accepted without qualification few will affirm. There is just sufficient fact in some of the assertions made to lend the color of truth to the whole. The experienced and discriminating surgeon, however, will readily see his way clear to a proper judgment as to the merits of the questions at issue, and somewhere between the one extreme of viewing every tubercular focus in the light of a malign affection to be dealt with by radical extirpation, and the other extreme as set forth by the author, he will seek for the light to guide him.

G. R. FOWLER.

THE ANNUAL OF ECLECTIC MEDICINE AND SURGERY. Edited by John V. Stevens, M.D. Vol. 8, embracing the papers and proceedings of the various State Eclectic Medical Societies for the years 1897 and 1898. 8 vo., 538 pp. Cloth, price, \$2.00. The Scudder Brothers Company, publishers, Cincinnati, Ohio, 1900.

To those interested in "Eclectic Medicine and Surgery," this volume will be of service. It contains within its 522 pages a summary of two years' work, together with portraits of many of the workers. As it is the official record for the United States we cannot accuse this sect of over activity in the literary line.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. Illustrated. Fourth edition, thoroughly revised. By James M. Anders, M.D., Ph.D., LL.D., Professor of the Practice of Medicine and of Clinical Medicine in the Medico-Chirurgical College, Philadelphia. Philadelphia and London, W. B. Saunders & Company, 1900, 1292 p., 7 pl. 8°. Price: Cloth, \$5.50 net; sheep and half-morocco, \$6.50 net.

We are glad to receive this fourth edition of so valuable a work. It will be no surprise to us if a fifth edition quickly follows. The demand for excellence in this line of knowledge is as great as in any department. The volume stands not only as a monument to its author, but as a stimulus to others engaged in enriching our literature.

MODERN MEDICINE. By Julius L. Salinger, M.D., Demonstrator of Clinical Medicine, Jefferson Medical College; Chief of the Medical Clinic, Jefferson Medical College Hospital; Attending Physician to the Philadelphia Hospital, and Frederick J. Kalteyer, M.D., Assistant Demon-

strator of Clinical Medicine, Jefferson Medical College; Hematologist to the Jefferson Medical College Hospital; Pathologist to the Lying-In Charity Hospital, Philadelphia; Assistant Pathologist to the Philadelphia Hospital. Illustrated. Philadelphia and London. W. B. Saunders & Company, 1900, 801 p., 8 pl. 8°. Price, cloth, \$4.00 *net*; half-morocco, \$5.00 *net*.

This book has been constructed with the intent of combining in one volume the essentials of the different branches of clinical medicine. To save the student the work of consulting separate books upon the various topics, their essence has been collated under one title. It is a valuable offering therefore to the general practitioner, as well as the scholar. It is a recognition of the fact that the medical man must be versatile. It is well written, well illustrated, logically arranged and carefully indexed and will occupy a permanent place among the best books of medicine.

INTERNATIONAL CLINICS. A quarterly of clinical lectures and especially prepared articles on medicine, neurology, surgery, therapeutics, obstetrics pædiatrics, pathology, dermatology, diseases of the eye, ear, nose, and throat, and other topics of interest to students and practitioners. By leading members of the medical profession throughout the world. Edited by Henry W. Cattell [and others]. Vol. 3. Tenth Series, 1900. Philadelphia, J. B. Lippincott Company, 1900. 301 pp., 10 pl. 8vo. Price, cloth, \$2.00 *net* per volume.

This volume indicates that the series of books to which it belongs will continue to increase in value with each addition. A new corps of editors has been engaged for the work and the method of presenting the subject matter has been changed. The clinician will find it reliable, useful and of great advantage as a work of reference. A general index, such as was issued for the first five series, would make the collection of books more serviceable.

A REFERENCE HANDBOOK of the medical sciences; embracing the entire range of scientific and practical medicine and allied science. By various writers. New edition, completely revised and rewritten. Edited by Albert H. Buck, M.D. Vol. 1. AAC-BLA. Illustrated by numerous chromolithographs and four hundred and ninety-eight fine half-tone and wood engravings. N. Y., W. Wood & Co. 1900. 799 p. 4°.

The first edition of these books was well received, also the supplementary volume which followed seven years afterward. This issue is the first of a complete reconstruction of the Handbook. All the articles of the existing nine volumes have been collected into groups, each of which represents a special department of medical knowledge. Each group has been intrusted to a competent specialist to determine the articles worthy of being republished. While a portion of the original edition has been retained much new matter will appear. The names of the men who have performed

the task guarantee its success. An up-to-date and beautifully illustrated series is portended by this beginning.

THE ANATOMY OF THE BRAIN. By R. H. Whitehead, M.D., Professor of Anatomy in the University of North Carolina. Illustrated with forty-one engravings. The F. A. Davis Company, 1900, pp. 96.

This little book, designed for the use of students, meets its requirements in a very satisfactory manner, and can be recommended to them as a decided aid to the understanding of the subject.

The chapter on the conducting paths of the Encephalon is of especial value in understanding the physiology of the brain and locating central nerve lesions.

With the exception of some new terms introduced in an already overburdened nomenclature, the book is of value and will repay careful study.

WARREN S. SIMMONS, JR.

A TEXT-BOOK UPON THE PATHOGENIC BACTERIA. For students and practitioners of medicine. By Joseph McFarland, M.D. Third edition. 19. W. B. Saunders & Co.

The advance in bacteriology has been so rapid of late, and the tendency to specialization so great, that it is difficult for an author to keep strictly within the limitations, in a work devoted exclusively to the consideration of the pathogenic bacteria. This, Dr. McFarland has succeeded admirably in doing. The third edition of this book, appearing so shortly after the former edition, is a decided improvement on an already valuable work. Confined, as it is, to the pathogenic bacteria, it is of especial value to the student and practitioner of medicine. The chapters on infection and immunity have been entirely rewritten and, considering the limits of our positive knowledge on these subjects, the theories have been discussed in a very lucid manner. The articles on Tuberculosis, Diphtheria, Tetanus, and Plague have been rewritten and brought thoroughly up to date. While it might be desired that rather more space be devoted to technique, so as to render the work more useful as a laboratory guide, the book as a whole is a most valuable addition to the library of practitioner and student.

E. H. WILSON.

SURGICAL PATHOLOGY AND THERAPEUTICS. By John Collins Warren, M.D., LL.D. W. B. Saunders & Co. Second edition, 1900.

In the second edition of this work, an attempt has been made to embody the important changes in a new Appendix which replaces the old one, and the chapter on Antiseptic Surgery.

The first chapter, on Bacteriology, consists of forty-two pages, in which the author has endeavored to condense the history of Bacteriology and with it the necessary technique of preparing and sterilizing media.

The second chapter consists of thirty-six pages, and is devoted to the "Surgical Bacteria," and includes, with few exceptions, all the more important pathogenic organisms.

It would seem that both these chapters were superfluous in a work of

this kind. Sufficient space is not given to technical methods to enable anyone to work from it, and the description of species and cultural characteristics cannot be condensed to such an extent without rendering them totally inadequate. The appendix on the bacteriology of the skin and skin disinfection is a most useful one, and that on regional bacteriology is exceedingly well arranged for practical use, although necessarily brief.

E. H. WILSON.

SAUNDERS' POCKET MEDICAL FORMULARY. By William M. Powell, M.D. Sixth edition, thoroughly revised. W. B. Saunders & Co., Philadelphia, 1900, pp. 298. Price, \$2.00 net.

Two hundred new formulæ have been added in this edition to the preceding one, and the dose-table has been brought up to date.

There are two criticisms which we have to make of this little book, one of which is serious, while the other is far less important. The serious criticism is that owing to a lack of index it is impossible without going through the book to find material which it contains, and that of a valuable kind. For instance; the treatment of drowning by Sylvester's method is given on pages 250 and 251, but there is no index to inform a reader of this fact, and he might well overlook it. It is certainly not sufficiently available in a case of emergency.

The minor criticism is that the average weight of the organs of the body, also not indexed, is given in ounces and drachms, and not as they should be in this progressive age, in the metric system.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. By W. A. Newman Dorland, A.M., M.D., with numerous illustrations and 24 colored plates. Philadelphia and London. W. B. Saunders & Co., 1900, pp. 770; price, \$4.50 plain; \$5.00 with index.

This new dictionary will be found to be a very valuable addition to a medical library, containing as it does the terms used in medicine, dentistry, pharmacy and chemistry, together with tables of arteries, muscles, nerves, veins, etc., of bacteria, ptomains, weights and measures, eponymic tables of diseases, operations, signs and symptoms, stains, tests, methods of treatment, etc. The illustrations are excellent and admirably adapted to illustrate.

TWENTIETH CENTURY PRACTICE OF MEDICINE. Volume 19, Malaria and Organisms. William Wood & Co., 1900.

First portion, Malaria, by Ettore Marchiafava and Amico Bignami. Our knowledge of the parasitology and etiology of the malarial fevers has been so greatly augmented of late by the work of Grassi, Marchiafava, Celli, Koch, Manson and others, that it may be safely said that works published even during the past year, while valuable in other respects, are decidedly behind the rapid advance recently made in our knowledge of the etiology and modes of dissemination of this disease.

The labors, therefore, of Marchiafava and Bignami in gathering together and presenting in elaborate form, the results of all these investigations, are very acceptable and of the most profound interest.

This work, which occupies 522 pages of the volume, is admirably written, beautifully illustrated, and certainly covers the ground most thoroughly.

Second portion, Micro-organisms, by Simon Flexner; Protozoa, by Eugene L. Opie.

The second portion of the volume, some 287 pages, is devoted to the consideration of micro-organisms, both the bacteria and the protozoa which are concerned in the etiology of disease. The portion devoted to the bacteria is fully up to what would be expected from the pen of so eminent an authority as Professor Flexner. Rather more space than usual has been given to classification. The chapter on metabolic products is concise and well arranged. That on technique is very practical, and only the best methods and working formulæ have been selected. That on the pathogenic bacteria is thoroughly up to date and fairly illustrated.

The portion devoted to the protozoa, by Dr. Opie, is excellent and contains a valuable bibliography.

Altogether, Volume 19 is one of the most valuable in the series.

E. H. WILSON.

THE TREATMENT OF FRACTURES. By Charles Locke Scudder, M.D., assisted by Frederick J. Cotton, M.D., with 585 illustrations. Philadelphia, W. B. Saunders, 1900.

This book consists of an exposition of some of the most recent advances made in the treatment of fractures. Just sufficient of the pathology, and the diagnostic points to be observed in individual fractures are given to enable the practitioner to treat cases intelligently. The necessity for the employment of anesthesia both as an aid to diagnosis and in the initial treatment is emphasized. The application of the Röntgen ray to diagnosis receives well merited attention, since, in the author's words, this "has already contributed much toward an accurate interpretation of the physical signs of fracture." In fact, the use of ether and chloroform together with the proper interpretation of the results obtained from the use of the X-ray mark an epoch in the treatment of this class of injuries, and has led to the necessity for a complete revision of many of the chapters upon the subject in the text-books, as well as a simplification of the methods of treatment formerly in vogue. The findings of a fluoroscopic examination, or of a skiagraph, combined with exact anatomical knowledge of the parts involved in the injury will enable the surgeon with moderate mechanical skill to depart from many of the methods of treatment in use a decade ago, and encourage the substitution of rational means for stock apparatus and other routine measures. With the opening up of this fresh field of operative effort, made relatively safe by asepsis and antiseptics, the results of treatment in complicated cases in the future, it is fair to predict, will far exceed those obtained in the past. All these matters are set forth in a remarkably attractive manner, the effectiveness of which is greatly enhanced by the introduction of well executed schematic line drawings, X-ray tracings, and beautiful half-tone reproductions of actual cases.

The book is fairly teeming with good, sound and practical teaching from cover to cover.

G. R. FOWLER.

A MANUAL OF SURGICAL TREATMENT. By Watson Cheyne, M.D., F.R.C.S., F.R.S., and F. F. Burghard, M.D., M.S. (Lond.), F.R.C.S. In seven volumes. Vol. III. The Treatment of the Surgical Affections of the Bones, and Amputations. Lea Brothers & Co., Philadelphia and New York.

The present volume of the series upon surgical treatment is divided into two parts, the first being devoted to the surgical affections of the bones, and the second to amputations. The first division is subdivided into two sections, the first section being upon fractures and the second upon diseases of bones. The latter does not include the surgical affections of the joints. Fractures of the skull, the spine, the jaw, the hyoid bone, and the ribs are likewise omitted from the second section. As stated in the preface to the volume, it is the intention in the case of the former to treat these in the succeeding volume, and to treat of the latter when the more strictly regional portion of the work is reached. The authors have likewise stated in this same preface and in order to forestall criticism, that the subject of fractures is so extensive that they have been compelled to recommend only those methods that have proved best in their hands. It is certainly true that many well-recognized methods of treating fractures are not even mentioned; this is also true concerning a number of other subjects treated of in this volume. In view of the fact that in the general preface to the work it is conceded that several methods of treatment may be of equal value, and that, while the authors have only discussed at length those which they have been led to adopt they have referred shortly to the others, it would be expected that the employment of measures of treatment that have found favor quite largely with surgical authorities would at least be noticed. That this has not been the case is apparent in a large number of instances.

Failure to give proper credit for pathological conditions present having a direct bearing upon the treatment, and for methods of treatment as well, is a shortcoming of the book for which the usual prefatory apology is not offered. The statement that the periosteum is usually torn below the line of fracture in fracture of the patella, and that in consequence a piece of periosteum projects for half an inch or more beyond the lower edge of the upper fragment, and curls round and lies over the fractured surface, is not in conformity with the experience of some who have exceptional opportunities of observing the presence of the feature of interposition of the aponeurosis forming the floor of the prepatella bursa as a cause of failure of bony union in these cases, as first described by Macewen. That the fractured surfaces are both more or less covered by fringes of the torn tissue is quite commonly found to be the case, thus supporting the contention of Macewen that the bone gives way first, and that the aponeurotic structures first become overstretched and then tear, falling upon and becoming entangled with the rough fractured surfaces of both fragments.

One is surprised at the unnecessary amount of traumatism inflicted in exposing the fractures for suturing as shown in figures 54, 55, and 56. Either this, or the drawings are greatly in error and, hence, misleading. The advice to rely upon the dressings alone after operation of suturing the

patella instead of applying a splint for the first few days at least, will scarcely be followed by surgeons in general. The use of absorbable sutures in cases in which the fragments are brought easily into apposition is entirely ignored, and the use of passive movements of the patella in a lateral direction early in the case to prevent adhesions is not mentioned.

The use of Wyeth's pins and rubber-tubing tourniquet to control the circulation in amputation at the hip-joint is apparently unknown to the author, as well as the device of fist pressure upon the abdominal aorta for the same purpose, although several other and very decidedly objectionable methods are mentioned. The method recommended is not to be compared with Wyeth's.

The volume, taken as a whole, however, is of great value, and will be certain to meet with favor because of its many practical points, and the effort to concisely yet clearly set these forth.

G. R. FOWLER.

BACTERIOLOGY AND SURGICAL TECHNIC FOR NURSES. By Emily M. A. Stoney. Philadelphia: W. B. Saunders & Company, 1900.

This little work is a most useful addition to the nurse's outfit, and should be in the possession of every professional nurse. The long experience of the author as a teacher in the special line of work upon which she writes so acceptably, and the care and painstaking evident upon every page of the book have resulted in the production of a work that will long remain a favorite with supervisors of training schools for nurses. Especially to be commended are the chapters on the care of the operating-room, methods of sterilization, the care of instruments, list of instruments necessary in different operations, catheterization, douches, enemata, washing out the bladder, preparation of the operating-room, preparation of the patient for operation, care of the patient during and after operation, the sequelae of operations, and gynecologic examinations. With such a book within reach there is no reason why the burden placed upon those who are responsible for the proper training of nurses in institutions should not be greatly lightened.

G. R. FOWLER.

ATLAS AND EPITOME OF DISEASES CAUSED BY ACCIDENTS. By Dr. Ed. Golebiewski of Berlin. Authorized translation from the German, with editorial notes and additions. By Pearce Bailey, M.D. Philadelphia: W. B. Saunders & Co., 1900.

The work before us occupies a unique place in medical literature, and in Germany, where it was written, it is considered particularly valuable because of the fact that it is looked upon somewhat in the light of an authority in the settlement of claims of workmen for physical injuries, where, more than anywhere else, the question of the danger to workmen engaged in special occupations is worked out in actual percentages, and where a law exists insuring workmen against injury. This effort to deal with the problem in a comprehensive manner would seem to be a distinct advance, since the extent of the damages and permanency of the injuries are fixed and determined, whether the fault of negligence lies with the workman or the employer. In other countries, on the contrary,

nothing is fixed except the construction of the law as expressed by the charge of the judge to the jury, who usually says in effect, that if the latter believe the plaintiff with all the possibilities of simulation and exaggeration they must decide one way; or, if they believe the defendant, with his interested witnesses and determination to belittle the claim of the injured person, they must find for him. The sentiments of the members of the jury are worked upon on the one hand, or their credulity on the other, with nothing to guide them save the appeals of the lawyers whose excess of zeal makes them more than advocates of justice, and the statements of a physician who, like the lawyer, only too often goes into court upon a contingent fee, both being, in a sense the partners of the plaintiff litigant in the business of mulcting the individual or corporation defendant to as great an extent as the common or uncommon sense of the men in the jury box will allow. Many of the latter frequently find it difficult to keep awake during the tiresome details of a discussion upon the relative diagnostic merits of a particular reflex, or the manifest and grossly exaggerated claims for excessively amounts urged in behalf of frequently only slightly injured plaintiffs. In Germany, on the contrary, any factor, save the extent of the injury, is settled beforehand, and the amount of the indemnity granted is in direct proportion to the disability and the consequent earning capacity. Tables of percentages are agreed upon in which the proportionate indemnity values in various injuries are stated. Earnest efforts are thus made to get at the truth as to the permanency of injuries, and, by one of the provisions of the law, the insurance allowance may be diminished or increased if in the after-history of the case it becomes apparent that the original estimate of the value of the injuries was in excess of or beneath the truth.

Dr. Golebiewski's book is the result of a desire to accurately determine the relation of injuries to pathologic conditions, a desire stimulated in Germany by the workman's insurance law, and the necessity for knowledge on the part of practitioners in general upon these points. This so-called branch of medicine has received a special name, "Unfallheilkunde." The work cannot fail to have a large class of readers, both lay and professional. For the benefit of lawyers who may wish to familiarize themselves with these points there is an anatomic and pathologic summary at the beginning of each section sufficiently intelligible to the non-medical reader to enable him to "post up" before entering upon the trial of a case.

Illustrative cases of injuries are introduced and in many of them the actual percentage value of the particular injury, as determined, is given. The question of "end results" is entered upon largely, with studies based upon a large number of cases, as stated, in some instances amounting to several hundred. By this means he has established the amount of permanent disability likely to follow certain injuries.

The lithographic plates are graphic illustrations of injured parts, and of themselves are worth more than the price of the book to the practitioner. The skiagraphs are also extremely valuable. The entire book is a good example of the painstaking care of the well-known publishing house, the industry and enterprise of which has brought to us so many works of sterling worth.

G. R. FOWLER.

DISEASES OF THE NOSE AND THROAT. By J. Price-Brown, M.B., L.R.C.P.E., Member of the College of Physicians and Surgeons of Ontario, etc. Illustrated with 159 engravings, including 6 full-page color-plates and 9 color-cuts in the text, many of them original. $6\frac{1}{4} \times 9\frac{1}{4}$ inches. Pages xvi-470. Extra cloth, \$3.50, net. The F. A. Davis Co., Publishers, 1914-16 Cherry St., Philadelphia.

This work presents some interesting departures from the plan of other books upon the same subject, and there is abundant evidence of careful study by the author in thus supplying what, in his opinion, is a desirable and somewhat unoccupied "professional field." The very laudable design of the book is clearly stated by Dr. J. Price-Brown in the preface, from which we quote. "He has frequently been struck with the small amount of knowledge possessed by the profession at large upon the diseases of these important organs." Namely, the nose and throat. "Patients are sent to the specialist . . . by physicians of towns far remote . . . but these are the fortunate few. What about the larger number, the impecunious, the poor? Those who might pay a small fee for relief from constant suffering, but are unable to make long journeys." It is fair to criticize a book only from the standpoint assumed by its writer. Its value should be estimated upon the manner in which it fulfils the purpose for which it was written.

The scientific information contained is well gleaned and the directions for treatment are conservative. The adoption of the metric system in writing prescriptions is to be commended.

This change of method is certain of general use in the future, as yet it is unintelligible, or at least perplexing to many. We believe better instruction would be afforded by giving, for comparison, the drug quantities in the familiar apothecaries' characters, as well as in the metric form.

Diseases of the maxillary and sphenoidal sinuses and the ethmoid cells receive a consideration that is far too brief, while frontal sinus disease is dismissed with this remarkable and original statement: "Disease of the frontal sinus . . . falls naturally under the domain of the oculist, and, hence, is usually treated by him." This is news which we have not heard before, and we are tempted to regard it as a demonstration of misplaced confidence.

Rhinologists are devoting more careful and well-merited study, at the present time, to diseases of all the accessory nasal sinuses, and their relation to intra-nasal disease, than to any other pathological condition of the uppermost air-passages. Any author that does not recognize this fact and devote reasonable space to its consideration, is falling short of his full duty.

The subject of asthma is not what, even from the standpoint of the specialist, and for information thereon, the reader is referred to "well-recognized works on general medicine." Diphtheria is excluded from the index and text, but in the preface the author seeks to justify this omission by stating that "the medical literature of the day is full of the subject. Every medical journal of any standing can tell the latest in regard to this disease." He further excuses himself because of the undetermined

relation of toxins to antitoxins, which "it may take another half-century to fully and absolutely define." We must infer that for fifty years, students are respectfully recommended to consult medical journals for the latest news upon diphtheria. This is surely excellent advice. It is very safe and it obviates the trouble of writing it up to date.

It is a pleasure to note that a fair amount of space is devoted to the pathology of diseases of the nose and throat. The enlarged microscopic views of abnormal tissue are excellent and the colored plates of frozen sections are most instructive. The book is convenient in size, and the printing and binding are entirely satisfactory. W. F. DUDLEY, M.D.

PROGRESSIVE MEDICINE, Vol. III., September, 1900. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in Jefferson Medical College of Philadelphia. Octavo, handsomely bound in cloth, 408 pages, with 14 engravings. Lea Brothers & Co., Philadelphia and New York. Issued quarterly. Price, \$10.00 per year.

This volume continues a review of recent literature, both medical and surgical. The work of students of various branches is carefully recorded. The means of diagnosis multiply, as do therapeutic measures, and such a careful work as this has become a need to the surgeon and physician to keep them in touch with the progress of the day.

LEA'S SERIES OF POCKET TEXT-BOOKS PRACTISE OF MEDICINE. A Manual for Students and Practitioners. By George E. Malsbary, M.D. Series edited by Bern B. Gallaudet, M.D., Demonstrator of Anatomy and Instructor in Surgery College of Physicians and Surgeons, N. Y. Illustrated with 45 engravings. Lea Brothers & Co., Philadelphia and New York, 1899.

This is a brief epitome. Its object is to present to practitioner and student the most recent advances in medicine—Infections, Diseases of the Organs of Digestion, Diseases of the Organs of Respiration, Diseases of the Organs of Circulation, Diseases of the Blood, Diseases of the Genito-Urinary Organs, are the titles of the main divisions of the book. Each subject is thoroughly and accurately presented. It is a book that the student and practitioner will use for quick reference. They will be astonished at the large amount of valuable material which has been compressed into so small a space. A good index is appended.

TWENTIETH CENTURY PRACTICE. An international encyclopedia of modern medical science by leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D. Volume 20. Tuberculosis, Yellow Fever, and Miscellaneous. General index. New York: W. Wood & Co., 1900. 906 pp. 8vo. Cloth.

This volume completes the Twentieth Century Practice. It is difficult to properly appreciate the great value of this collection of books. It is

one of the most complete and scientific reviews of modern medicine that has come from the press and is a reliable record of the many and radical changes that have taken place in the healing art during the closing years of this century. The product of the co-operative work of the recognized authorities of Europe and America, it is a reflex of the medical knowledge of the world. It will prove a mighty instrument of succor to the afflicted and a weapon of defense against the miserable assumptions upon which are builded the quackeries of the day. We laud and congratulate the authors on the happy result of their labors, and we thank the publishers for placing on our shelves such a monument to the scientific attainments of the profession.

NEW THERAPEUTIC REFERENCE BOOK. By Wm. R. Warner. Philadelphia and New York.

This is a vade mecum or easy-reference book wherewith to refresh the memory as to doubtful points in the therapeutic field.

A BOOK OF DETACHABLE DIET LISTS, for Albuminuria, Anemia and Debility, Constipation, Diabetes, Diarrhea, Dyspepsia, Fevers, Gout or Uric-acid Diathesis, Obesity, Tuberculosis, and a Sick-Room Dietary. Compiled by Jerome B. Thomas, Jr., A.B., M.D., Instructor in Materia Medica, Long Island College Hospital; Assistant Bacteriologist to Hoagland Laboratory. Second edition, revised. Published by W. B. Saunders, Philadelphia, 1900.

This is an old friend which has helped us to pass that stumbling-block, diet, many a time. We are glad to find that he has made himself as useful as this second edition would indicate. There ought to be a great demand for the work.

SEXUAL IMPOTENCE. By Victor G. Vecki. 283 pages. Published by W. B. Saunders & Co.

In this little volume is to be found a clear account of the various aberrations of the sexual function, of which the most usual form met with is impotence, either partial or complete.

The different conditions, such as impotence due to malformation and defects of the generative organs, impotence caused by diseases in the nervous system or in the urethra, and toxic conditions and the various neurasthenic forms, are all fully treated of, and the etiology and treatment clearly laid down.

The book may be regarded as a valuable guide in handling such troublesome cases as these patients are apt to prove. H. H. MORTON.

SURGICAL DISEASES OF THE GENITO-URINARY TRACT. By G. Frank Lydston. 1000 pages. Published by F. A. Davis Co., 1899.

The rapid development of genito-urinary diseases as a special branch of surgery has called into being a number of books on the subject.

Among these the one of G. Frank Lydston may be commended as a

practical and clear guide for the general practitioner, who is desirous of knowing the modern methods of diagnosis and treatment.

The book is amply illustrated with 233 cuts. H. H. MORTON.

A MANUAL OF THE DIAGNOSIS AND TREATMENT OF THE DISEASES OF THE EYE. By Edward Jackson, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polyclinic; formerly Chairman of Section on Ophthalmology of the American Medical Association; Member of the American Ophthalmological Society; Fellow and ex-President of the American Academy of Medicine. With 178 illustrations and 2 colored plates. Philadelphia: W. B. Saunders, 925 Walnut street, 1900.

Dr. Jackson's long experience, both as a teacher and a writer, has eminently qualified him for the task of writing a concise and practical manual of diseases of the eye. It is gratifying to note that this work is used as a text-book in a number of our leading medical colleges. In a work of such general excellence it is difficult to specify which section is the most valuable. However, the chapter on "The Relation between the Eye and General Diseases" is of special interest both to the ophthalmologist and the general practitioner. Chapter on skiascopy is a careful condensation of the author's book on "Skiascopy," published in 1895.

Many of the illustrations are from the author's own drawings. On p. 42, by some oversight, *muscæ volitantes* is translated "running mice."

JAMES W. INGALLS.

COMPEND OF GYNECOLOGY. By William H. Wells, Adjunct Professor of Obstetrics and Diseases of Infancy in the Philadelphia Polyclinic, etc., etc. Second edition. With illustrations. Philadelphia: P. Blakiston's Son & Co.

The second edition of this quiz-compend (number 7 in the series) is equally as valuable as the others of this set. The subject is discussed in the usual order, the external genitals and their diseases first, next those of the vagina, then the uterus, then the oviducts, etc.; each disease being concisely and compactly treated of. The illustrations are numerous and many are good. The index is especially complete, and comparative tables, the delight of the student, are frequently found. The little book will greatly aid many a busy undergraduate.

THE STUDENT'S MEDICAL DICTIONARY. By George M. Gould, A.M., M.D., etc. Eleventh edition enlarged, with many illustrations. Philadelphia: P. Blakiston's Son & Co., 1900. Price, \$2.50.

In looking at this book the first thing that strikes us is the absence of page numbers. We do not know that the omission makes any difference, but it is peculiar. We note by the preface that this edition contains over a hundred pages more than the preceding one, and knowing the author's veracity we accept the statement. It contains besides a new

table of eponymic terms and tests. As a "handy" dictionary it is a most useful addition to medical literature.

BRAIN IN RELATION TO MIND. By J. S. Christison, M.D., Chicago, 1900. Meng Publishing Co., pp. 143 Second Edition.

This is a book intended rather to catch the fancy of quasi-religious disputants than to be of medical value. In a way it presents much regarding the brain, but it omits more and is essentially an attempt at special pleading. Probably it is a business appeal to a certain class of lay readers.

Such statements as the following give an idea of one feature of the primer: p. 14, "Thus it follows that something of a mind must exist before a brain can be formed." Again, "The current evolution idea, the greatest delusion of the nineteenth century." Or p. 46, "The cerebellum appears as functionally homogeneous" (certainly not true). P. 113, "The irksomeness of inaptness"—whatever that may mean. He makes great claims for "functional substitution" where any part of the brain is destroyed.

The author seems to have a special taste for slurring facts and collecting anomalous cases, in order apparently to decry and upset all modern progress in this field.

Doubtless such a work will find appreciative readers, and some may thus be induced to learn more.

W. BROWNING.

A MANUAL OF PERSONAL HYGIENE. Edited by Walter M. Pyle, A.M., M.D., Assistant Surgeon to Wills Eye Hospital, Philadelphia, Pa., etc. Contributors: J. W. Courtney, M.D.; George Howard Fox, M.D.; E. Fletcher Ingals, M.D.; Walter M. Pyle, M.D.; B. Alexander Randall, M.D., and Charles G. Stockton, M.D. Illustrated. Philadelphia. W. B. Saunders & Co., 1900. Pp. 344. Price, \$1.50 net.

The object for which this manual was written is stated in the preface to be to set forth plainly the best means of developing and maintaining physical and mental vigor. It contains sufficient anatomy and physiology of the parts under discussion to serve as a basis for advice as to the best methods of keeping these parts in a physiological condition. The general topics considered and the authors who have written upon these topics are as follows: Hygiene of the Digestive Apparatus, by Charles G. Stockton, M.D., of Buffalo. Hygiene of the Skin and Its Appendages, by George Howard Fox, M.D., of New York. Hygiene of the Vocal and Respiratory Apparatus, by E. Fletcher Ingals, M.D., of Chicago. Hygiene of the Ear, by B. Alex. Randall, M.D., of Philadelphia. Hygiene of the Eye, by Walter M. Pyle, M.D., of Philadelphia. Hygiene of the Brain and Nervous System, by J. W. Courtney, M.D., of Boston. Physical Exercise, by G. N. Stewart, M.D., of Cincinnati.

The matter of the manual is most excellent, and the manner in which the subjects are treated is masterly. It is a book which should be read by every physician and medical student and would be a valuable addition to the library of every intelligent layman.

ANATOMY, PHYSIOLOGY AND HYGIENE. By Jerome Walker, M.D., Lecturer upon Anatomy, Physiology and Hygiene at the Girls' High School

and the Commercial High School, Brooklyn. New edition, entirely rewritten, with original and carefully selected illustrations. Boston. Allyn & Bacon, 1900. Pp. 490.

"Walker's Physiology" has been a familiar text-book in the schools of the United States since its first appearance in 1883. The author's long experience both as teacher and practising physician render him peculiarly qualified to write a text-book for school children. He has succeeded in a way that was hardly to be expected in escaping both the Charybdis and the Scylla of the alcohol controversy of the day, for the advocates of the "food" value of alcohol and those who claim it always to be a "poison" will both find their views fairly presented. We commend the book most heartily to teachers of private schools and to those whose duty it is to select text-books for the public schools.

PRACTICAL URINALYSIS AND URINARY DIAGNOSIS. A Manual for the Use of Physicians, Surgeons, and Students. By Charles W. Purdy, LL.D., M.D. Queens University; Fellow of the Royal College of Physicians and Surgeons, Kingston, Canada; Professor of Clinical Medicine at the Chicago Post-Graduate Medical School, etc. Fifth Revised and Enlarged Edition. With numerous illustrations, including photo-engravings, colored plates, and tables for estimating total solids from specific gravity, chlorides, phosphates, sulphates, albumin, reaction of proteids, sugar, etc., etc., in urine. 6x9 inches. Pages xvi-406. Extra cloth, \$3.00, net. F. A. Davis Company, Publishers, 1914-16 Cherry street, Philadelphia.

This edition we find not only a careful revision of the preceding one, but also an extension of centrifugal analysis in urinary examinations and a complete rewriting of the subject of testing for albumin, both quantitatively and qualitatively.

A TREATISE ON DISEASES OF THE NOSE AND THROAT. By Ernest L. Shurly, M.D., Vice-President and Professor of Laryngology and Clinical Medicine, Detroit College of Medicine; Laryngologist and Late Chief of Staff, Harper Hospital, etc.; 8vo. 223 illustrations and 6 colored plates. Pages, 744. Cloth, \$5.00. Sheep, \$6.00. New York: D. Appleton & Co., 1900.

Dr. Shurly in his preface very modestly announces that his book is designed to meet the "requirements of the general practitioner and the student." The author has accomplished this in a most acceptable manner. No exhaustive treatise is attempted, but the book will interest every special worker on account of its clear and fair-minded statement of theories and facts. The volume is somewhat bulky for the average medical student to utilize as a college text-book, but we commend it as a

book which will retain its value and will serve him well in his future post-graduate work.

Discussions of operations upon the external nose and the maxillæ has been wisely omitted as not properly coming within the scope of the book.

The articles upon tuberculosis, syphilis, and diphtheria are worthy of careful consideration. Under the last-named subject is included a timely and helpful statement upon the puzzling question of mixed infection.

The illustrations are many and well executed. In particular we would call attention to a series of beautiful photo-reproductions of antero-posterior sections of a child's head, showing the successive steps of the operation of intubation and extubation. It is the best pictorial representation of this operation we have yet seen. There is also a collection of finely-colored photos by Grünwald, Schnitzler, and Wright depicting diseased conditions of the upper air-passages. It is safe to state that this is one of the most concise books upon this rapidly-growing field that is now offered to the student and the general practitioner.

W. F. DUDLEY.

CHIRURGIE DU FOIE ET DES VOIES BILIAIRES. Par J. Pantaloni (de Marseilles) Paris, Institute de Bibliographie Scientifique, 1899.

This is a large and handsomely printed octavo of 626 pages, devoted exclusively to the subject of the surgery of the liver and the biliary passages. The work is very conveniently divided into four parts. The first is upon surgery of the liver in its entirety and includes the general surgical technic and the special operations upon that organ. The second part treats of the operations upon the adnexa of the liver, upon the perihepatic ganglions, and upon the ligaments of the liver. The third part treats of operations upon the biliary passages and includes the operative technic of these as a whole, and special operations upon the accessory biliary passages (gall-bladder and cystic duct). The fourth part deals with operations in general upon the principal biliary passages and includes the ductus communis choledochus, operations upon the hepatic duct, and upon the lesser biliary canals.

The work is most comprehensive in its scope and complete in its details. Each chapter is made to cover the definition as well as synonyms of its title, a complete historical review of the subject treated of, the operative technic and sources of difficulties and errors, and finally the indications for the application of the operative procedure under review. There is a suggestion for an international index upon the subject based upon the decimal classification method of Dewey and M. Boudouin, an index to the authorities quoted, and a classified index to the illustrations, the latter numbering upwards of 350.

The character of the book is at once such as to render it a valuable work of reference, as well as of the greatest utility to the practical surgeon.

G. R. FOWLER.

REPRINTS RECEIVED.

- BECK (C.). Die bedeutung und behandlung der kniescheibenbrueche in moderner beleuchtung. 8 p. 8°. Reprint *New Yorker med. Monatschr.*, July, 1900.
- Contribution to the therapy of encephalocele. 5 p., 1 pl. 18°. Reprint *Internat. M. Mag.*, August, 1900.
- Errors caused by the false interpretation of the Roentgen-rays, and their medico-legal aspects. 16 p., 2 pl., 8°. Reprint *Med. Rec.*, August 25, 1900.
- A new method of colpoplasty in a case of entire absence of the vagina. 3 p., 1 pl., 8°. Reprint *Ann. Surg.*, October, 1900.
- A new method of operation for exstrophy of the bladder. 5 p., 12°. Reprint *New York M. J.*, August 25, 1900.
- On suspending the uterus on the round ligaments. 3 p., 8°. Reprint *Am. J. Obst.*, xlii, No. 3, 1900.
- On the treatment of metacarpal fracture. 7 p., 8°. Reprint *New York M. J.*, August 4, 1900.
- Ueber die sanduhr-gallenblase. 3 p., 8°. Reprint *Deut. Med. Ztg.*, No. 6, 1900.
- COFFEY (R. C.). A crushable button as an aid to suturing in intestinal anastomosis. 4 1.8°. Reprint *Med. Sentinel*, August, 1900.
- FOX (L. W.). Change of refraction from compound hypermetropic astigmatism to compound myopic astigmatism; glaucoma. 3 p., 8°. Reprint *Carolina M. J.*, February, 1900.
- Epiphora; lachrymal abscess; congenital absence of lachrymal punctæ; stricture of the lachrymal duct. 7 p., 8°. Reprint *Ophthal. Rec.*, August, 1900.
- Implantation of a glass ball into the orbital cavity. 4 p., 12°. Reprint *N. Eng. M. Month*, December, 1899.
- A simple operation for divergent strabismus. 8 p., 8°. Chicago, 1900.
- HANCOCK (J. C.). Trachoma. 7 p., 8°. Reprint *New York Lancet*, July, 1900.
- Medical legislation: Gov. Thomas' veto of the Colorado medical bill. The Love medical bill of Ohio. Medical ethics. 16 p., 8°. Columbus, O., 1900.
- Presentation to Mr. L. M. Griffiths. 7 p., 1 pl., 8°. *Bristol Med.-Chir. J.*, June, 1900.
- SMITH (A. H.). Would it not be a gain to both pathology and practise if a direct interaction between the morbid agent (noxa) and the reparative effort were recognized and the conception of an intermediate, so-called inflammatory process abandoned? 11 p., 8°. Reprint "Trans. Assoc. Am. Phys.," 1900.

- STUBBERT (J. E.). Annual report of the Loomis Sanitarium for Consumptives. 7 p., 8°. Reprint *Phila. M. J.*, December 30, 1899.
- Subsequent histories of patients apparently cured under administration of antitubercle serum as an auxiliary to climatic treatment. 15 p., 8°. Reprint *Med. News*, August 18, 1900.
- COOKE (J. B.). Some points in the management of obstetric cases in private practice. Repr. *Med. News*, June 23, 1900. 7 p. 12°.
- BUCHANAN (J. J.). Total excision of the scapula alone, and with the arm (interscapulo-thoracic amputation); partial excision of the scapula for tumor. 22 p. 4°. Repr. *Phila. M. J.*, July 7-14, 1900.
- MUSSER (J. H.). Cancer of the common bile-duct. 4 p. 8°. Repr. *Univ. M. Mag.*, Sept., 1899.
- MUSSER (J. H.). The indications for the use of alcoholic stimulants in typhoid fever. 5 p. 8°. Repr. *Therap. Gaz.*, April 15, 1900.
- MUSSER (J. H.). On the use of antitoxin in diphtheria; with special reference to small and frequently repeated doses. 13 p. 8°. Repr. *Univ. M. Mag.*, March, 1900.
- MUSSER (J. H.). and STEELE (J. D.). Some cases of dilatation of the stomach. 16 p. 8°. Repr. *Am. J. M. Sci.*, Feb., 1900.
- LERCH (O.). Concomitant measles, chicken-pox and smallpox. 8 p. 8°. Repr. *N. Orleans M. & S. J.*, Aug., 1900.
- McKERNON (J. F.). A contribution to the technique of modern uranoplasty. 24 p. 12°. Repr. *N. York M. J.*, June 16, 1900.
- McKERNON (J. F.). Sigmoid sinus thrombosis. 40 p. 8°. Repr. *Laryngoscope*, May and June, 1900.
- MAINE. Seventh annual report upon the births, marriages, divorces and deaths in the State of — for the year ending December 31, 1898. Augusta, 1900. 236 p. 8°.
- Central college of physicians and surgeons, Indianapolis, Ind. 22. Annual announcement of the — 27 p. 8°.
- Columbia University in the city of New York. Teachers' College. Special course in hospital economics. 1900-1901. 11 p. 8°.
- Kentucky School of Medicine and Hospital in the city of Louisville. Register of students, 1900. Circular of information, 1901. 23 p. 8°.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

Dr. Robert Schmeltzer was recently chosen President of the Germania Club. With his ability as a social and general leader, he will no doubt give a most successful administration.

Dr. Walter Truslow has been elected President of the New York Society for the Advancement of Physical Education.

Dr. William Francis Campbell was elected a member of the Association of American Anatomists at the recent meeting in Baltimore.

Dr. Victor L. Zimmerman has been made associate to Dr. John Byrne in the gynecological department of St. Mary's Hospital.

Dr. Claude G. Crane (P. and S. 1900) began his service as interne at the Brooklyn Hospital January 1st.

Dr. Joseph Meyer was the delegate from the German Medical Society to the Medical Society of the State of New York.

At the annual meeting of the Brooklyn Society for Neurology held December 27th, the following officers were elected for the ensuing year: President, W. H. Haynes; Vice-President, R. C. F. Combes; Secretary, B. Onuf; Librarian, W. H. Haynes; Editor, B. Onuf.

At the meeting of the Roentgen Society in December, Dr. H. P. Bender was elected Second Vice-President.

Dr. Hugh E. Rogers, who has been attached for some time to the Orthopedic department at St. Mary's Hospital, has been appointed assistant in the medical department.

Dr. Frederick A. Cook, of Bushwick avenue, who was surgeon of the Belgian antarctic expedition, sailed January 3rd for a ten weeks' absence in Europe. He will probably visit London, Brussels, Paris, and Berlin. He has gone abroad to aid in the preparation of the scientific results of the two years in the antarctic, for the publication which the Belgian Government will issue. Dr. Cook's chief contribution to the work will be his ethnological studies of the Terra del Fuegian Indians. Dr. Cook will be the guest in Brussels of his antarctic comrade, Prof. George Leconte, director of the Royal Belgian Observatory.

Dr. A. A. Webber, in taking up shooting as a recreation, has brought Brooklyn well to the front among the experts of the country in that line. He took up revolver shooting in January, 1897, and in March of that year made the first full score on a standard American target in a match at the Knickerbocker Athletic Club. Together with Dr. Ezra Wilson and others, in January, 1898, he formed the Brooklyn Revolver Club, of which Drs. McNaughton, Browning, Winfield, Stokes, and Napier were subsequently members. In the Sportsman's Show of 1899, Dr. Webber carried off all the honors with the revolver, winning five trophies, and in thirty consecutive shots, breaking the world's record. In September, 1899, with a military revolver at 50 yards, he made a new world's record—90 bulls out of 100. Early in 1900 he took up live bird shooting, and in the Grand American Handicap last year he was one of eight out of 230 entries to kill 25 straight. In the shoot-off he secured fourth place, and might have been first had he not attempted shooting without a shell in his gun. Last year a well-known insurance company called upon him to testify in a suicide case as medical and revolver expert combined, paying probably the largest expert fee ever received by a physician. In 1900 he won also a 100-bird match, the Ruby championship for clay pigeons, and the Dewar trophy. Mrs. Webber is also an enthusiast in shooting, being a good shot with gun and pistol.

Dr. Charles M. Williams, of Grace court, having recently completed his hospital course, will spend the winter in California before beginning practice.

On January 9th Dr. Henry C. Keenan was married to Helen Josephine Campbell, daughter of Mr. and Mrs. Patrick Campbell, of Herkimer street.

The death must be recorded of Dr. Lucius J. W. Lee, of Quincey street, on January 7th.

The annual dinner of the Long Island Medical Society will be held February 5th at the Montauk Club.

The annual meeting of the Associated Physicians of Long Island was held January 26th at the County Society building, and the dinner at the Oxford Club, at which the out of town delegation were the guests of the Brooklyn members.

Dr. and Mrs. John E. Sheppard gave a reception on January 7th which was largely attended by the physicians of the city and their wives.

Various attempts have been made from time to time to have the collection of medical books of the Long Island Historical Society secured for the library of the Medical Society of the County of Kings. Through the efforts of Dr. Joseph H. Raymond, with the aid also of others, the books have been obtained as a loan under certain conditions which the council have accepted. The collection comprise some 2,100 bound volumes and 600 pamphlets, including many of considerable value.

At the Kings County Hospital, Drs. Browning, Winfield and H. H. Morton held the first of a series of clinics on January 19th.

Dr. George Deely (P. and S., 1900) entered upon his service as interne at St. Mary's Hospital, January 1st. Dr. Oscar Torian (U. of P., 1900) came on service the same date at the Kings County Hospital.

The Alumni Association of Brooklyn Hospital, which was organized in December, 1900, held the first annual banquet January 17th at the Oxford Club, twenty-five members being present. Toasts were responded to by Drs. Raymond, McGoldrick, Sherwell, Fraser, and Rathbun. The officers are: President, Arthur R. Paine; vice-president, Charles G. Molin; secretary and treasurer, C. F. Hermann.

The officers elected at the annual meeting of the Brooklyn Medical Society were as follows: President, J. C. Kennedy; vice-president, E. A. Hatch; recording secretary, B. F. M. Blake; corresponding secretary, J. J. Bowen; treasurer, A. H. Brundage.

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

EDITOR IN CHIEF:

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VOL. XV, No. 3.
WHOLE No. 159. }

BROOKLYN, N. Y., MARCH, 1901.

{ Single copies 25 cents
{ \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

THE BIO-CHEMICAL PATHOLOGY OF THE LIVER.

BY HENRY A. BUNKER, M.D.

As any study of the pathology of the liver from a chemical standpoint must be based upon whatever information we may have of its physiological chemistry, it may be well to devote a little time to a short *résumé* of the achievements of recent years in this department of research.

The importance of the liver in the animal economy is shown not only in the fact that it is by far the largest gland in the body, but also by its early appearance in the development of the embryo. While it is an organ of intense and unceasing activity, and while the products of this activity are recognized as the results of hydrations, oxidations, reductions and syntheses, such as can be obtained in the laboratory only by the action of powerful reagents, it must be admitted that the true significance of these chemical processes, and the correct classification of their products in their proper and orderly physiological sequence, have not as yet been satisfactorily elucidated. What we assume to be facts, as to their proper place and function in nutrition, are constantly undergoing modification, and there is probably no subject upon which theories are so subject to revision.

The generally accepted specific functions of the liver are the formation of glycogen from the soluble carbo-hydrates of the food, by a process of dehydration, and the manufacture and secretion of bile. A third and fourth function of the liver was formerly accepted (Legg) in the maintenance of animal heat (Bernard), and the production of red blood-corpuscles (Lehmann). These, however, need not now be considered, since animal heat is produced wherever oxidation is going on, and, although Bernard's demonstration of the increased heat of the blood in the hepatic vein over that in the portal vein still holds good, it may readily be accounted for in the greater activity of the oxidation going on in the liver over that ordinarily taking place in other glands and tissues. Lehmann's theory of the hematopoietic function of the liver has never been substantiated, and is now, I believe, fully abandoned. There is now little doubt that the final oxidation of the amido-acid series into urea and uric acid takes place chiefly in the liver, but as the toxemias due to retention of urea, or of its antecedents, of which we know so little, are found to be due mainly to failures elsewhere, either in elimination or to disturbances outside the liver itself, uremia is not classed as due to pathological hepatic conditions. While it is true that in extensive degenerative diseases of the liver, as acute yellow atrophy and in cirrhosis, particularly of rapid occurrence (Shaeffer), there is marked decrease of urea formation, with accompanying increase of ammonia in the blood, together with lactic acid, there is as yet little to be said as to the process by which this occurs or as to the chemical problems involved. Ponfick found that in partial extirpation of the liver there is greater or less decrease of urea found in the urine, and a corresponding increase in ammonia. It is also known that in the extensive degeneration of the liver cells, in phosphorus poisoning, the same phenomena in urea formation are found, but that there is a reappearance of the normal amount, together with decrease of ammonia, as regeneration takes place.

In view of the fact that Drechsel found carbamic acid in the blood of dogs, and that it also occurs normally in the blood of the horse as carbamate of calcium, his theory of the synthesis of urea in the liver, from the oxidation products of proteid material throughout the body, as the amido-acids, and brought to the liver in the blood current, is found to be highly probable.

The retention toxemias, which we are in the habit of classifying under the name of uremia, are probably, therefore, as sug-

gested above, not so much due to pathological states of the liver as to disease conditions elsewhere.

The same may be said with equal or greater force of uric acid, whose formation in, or by the liver, has no positive proof either by experiment or by observation.

Although apparently inseparably connected with disturbed liver action, excess of uric acid formation will probably be found to be due to the action of the bile acids upon the alloxur bases, as found by Horbaczewski in lymphoid tissues generally, and in the leucocytes. The fact that in birds and reptiles uric acid, and not urea, is the end product of proteid metabolism, would seem to indicate the possibility that uric acid itself is not so much the cause of toxemic symptoms as are its unsynthetized antecedents, or possibly, some of the under-oxidized acids, which will be referred to later in the discussion of the glyco-genetic disturbances to which the liver is so subject.

The close relationship existing between uric acid and urea, chemically, is shown in the fact that in nearly all of the decompositions of uric acid, for each molecule, two molecules of urea, together with a carbon acid of some kind, are formed (Charles), and conversely, in the synthesis of uric acid effected by Horbaczewski, by fusing together at high temperatures urea and glycocoll. It would seem, therefore, in view of the fact that urea and uric acid are found in other tissues and fluids of the body, that the powers of synthesis and oxidation, which result in this form of nitrogenous waste material are possessed by other gland cells beside those of the liver, the hepatic cells, by virtue of the greater size and activity of the liver, giving rise to these substances in larger relative amount. It is possible, however, that whatever of increased urea and uric acid-forming powers the liver may have over other glandular organs, as a sort of final oxidizing depot, may be assured by the co-operation of the distinctly hepatic functions before referred to, and to which it may now be well to return. I refer to the formation of bile, and the power the liver has of storing glycogen, upon both of which functions will be found to depend very largely the whole of the pathology of the liver.

Analyses of the bile show that the bile acids and the bile pigment are the only substances which are peculiar to it. The lecithin, mucin, fats, cholesterin and inorganic salts are found in abundance in other organs and tissues; and in view of the fact that they are all found in all growing tissues, both animal

and vegetable, and are abundantly supplied in egg yolk, in the placenta and in embryonic structure, they must be considered as nutritive material *par excellence*, prepared possibly, by the liver, but all ready for immediate use. From this point of view they can be considered, in no sense, as decomposition products, as so strongly maintained by Haliburton, Naunyn, and others.

The researches of Hoppe-Seyler, Liebermann and Hammarsten go far to prove the importance of lecithin in the structure of the nucleo-proteids. Hoppe-Seyler found that vitellin, which Hammarsten calls a phospho-glucoprotein, contains as much as 25 per cent. of lecithin. As lecithin however, is not known to figure in any pathological condition of the liver, or of hepatic function, it need not be further considered here.

The origin of cholesterin in the bile is not known. It is a monatomic alcohol, and is found in all animal and vegetable structures, both active, as in blood, chyle, the white matter of brain and nerves, and in nutritive form, as storage, in milk, egg yolk, etc. Its pathological significance seems to be limited to its accumulation as cholesterin biliary calculi.

It is probably formed, as are all the alcohols, by hydrolytic enzyme action upon soluble carbohydrates, and would, therefore, naturally be found in greatest abundance in the liver secretions.

Naunyn's contention that cholesterin is a decomposition product, arising from destruction of the cells lining the bile passages, is not found tenable by Gamgee and others. His view that cholesterin is produced as a disintegration product of all protoplasm is apparently disproved by results obtained by Jankau and Krausch, in his own laboratory. Jankau injected cholesterin into dogs, and also gave it in their food, and ascertained that it had all been absorbed; there was no increase of cholesterin in the bile or in the liver tissue. Krausch failed to show any relationship between the amount of cholesterin in the liver and in its secretions, or between the amount excreted and the kind of food taken. All of which would seem to disprove any relationship between cell disintegration and the amount of cholesterin formed or found in the bile. It is altogether probable that it is really an accumulation product of the hydrolysis of carbohydrate, in the same sense that dextrose is an accumulation product of the hydration of glycogen—a fact which is well recognized by all experimental physiologists as the main difficulty in exact determinations of glycogen in recently dead-liver tissue. The dextrose thus formed by the continued action of the

soluble enzymes, even after the death of the liver cells, is never considered, in any sense, as a waste product, although its accumulation, to the point of elimination, as dextrose in the living subject, is characteristic of the diabetic condition. In view of the overwork the average liver is called upon to perform, it is not surprising that there should frequently be a greater amount of cholesterin produced than can be utilized, and that it does appear as waste material. At any rate, its accumulation as cholesterin calculi always demands a nidus of other material, around which it may crystallize.

Fleischl's demonstration that the bile is not reabsorbed by the blood-vessels of the liver, but by the lymphatics of that organ, whence it makes its way into the blood by way of the thoracic duct, makes clear the fate of the fats and perhaps, part, at least, of the cholesterin, lecithin and inorganic salts contained in the bile, particularly as he found that the lymph of the thoracic duct contains large quantities of biliary constituents, while the blood serum is entirely free from them.

Aside from these substances, which may be, and doubtless are, formed in other organs and tissues than the liver, the distinctive constituents of the bile are the bile acids and the bile pigment. The bile acids, glycocholic and taurocholic acids, are always found in the bile as sodium salts. They are conjugated acids, and on decomposition give rise to cholalic acid, or one of several allied acids, and an amido-acid. The amido-acid of glycocholic acid is glycoll—amido-acetic acid, while that of taurocholic acid is taurine—amido-ethyl-sulphonic acid. These conjugation amido-acids are probably the oxidation products of proteid and albuminoids, as elsewhere throughout the body, and can have no pathological significance aside from failure of further oxidation, possibly as leucine and tyrosine.

Cholalic acid is known to be a monobasic alcohol-acid, containing one secondary and two primary alcohol groups, and, therefore, readily forming on oxidation one ketone and two aldehyde groups. Pathologically, this laboratory fact may be of considerable interest, in view of the well known reducing powers of the aldehydes and ketones. The absorption of cholalic acid into the blood current, or its intra-venous injection, is promptly followed by extensive destruction of the blood elements, particularly the oxygen-carrying hemoglobin, and it seems quite reasonable to suppose that this is brought about by some powerful reducing substances. Whether or not this is the

origin of the bile pigment, as produced in the liver, the blood-coloring matter must be considered as the mother substance of the bile pigment (Hammarsten).

The pathological importance of the coloring matters of the bile would seem to be purely of a diagnostic character. What changes the hemoglobin of the blood may go through in its disintegration in the liver may prove to be of importance, physiologically, in view of the close analogy of function and of chemical structure which is known to exist between it and the chlorophyll of plants. According to Richter, the hemin of the blood is easily reducible to hematoporphyrin, while an identical substance —phylloporphyrin—is produced from chlorophyll. The absorption spectra of their neutral and acid solutions are identical, and only differ in that the lines of hematoporphyrin are moved a shade toward the red." "That is, they are different stages of oxidation of one and the same nucleus substance" (Richter, Vol. 1, page 585). It is fairly well established (Pavy, and von Sachs) that the dehydration of the soluble carbohydrates of the sap in plants, and the deposit of the dehydrated product, as starch, is brought about by the agency of the chlorophyll.

In the liver the same process of dehydration and storage takes place in the formation of glycogen, and by a process which seems to be identical, both in method and in result. Interesting as such an investigation might be, the only apparent connection it might have upon the pathology of the liver would seem to lie in the diagnostic significance which may attach to the very intimate relation existing between the oxygen-bearing coloring matter of the blood and the oxidized coloring matter of the bile. Whatever may be the connection between the hemoglobin and the storage of glycogen in the liver, this storage must be considered one of the chief physiological hepatic functions, whether we accept Bernard's theory that the liver is a sugar-forming organ, or the opposite theory of Pavy that its function is, in the main, one of assimilation.

In either case, the cause of glycosuria as a pathological entity would have to be looked for elsewhere than in the liver.

What we know of the glycogenetic functions of other organs, and of the muscles, together with the fact that experimental glycosuria may be produced by deprivation of oxygen, as in carbon monoxide inhalation and the diminution of the amount of oxygenated blood passing especially through the vis-

cera, produced by irritation of certain vasomotor centers, and, further, the action of certain drugs, as phloridzin, all would seem to take this pathological condition out of the domain of the subject for this evening and relegate it to the hematopoietic system.

In speaking of the toxemic symptoms accompanying excessive uric acid formation, or rather elimination, reference was made to certain under-oxidized acids as having a much more intimate causative relation to the symptoms than the uric acid itself.

The term under-oxidized, here used, must be understood as having reference not so much to the actual state of oxidation as to the condition of oxidation relatively to the stage of physiological elimination. These acids, occurring in their proper position in bio-chemical sequence, are strictly physiological, but become pathological by their accumulation, and even form new bodies by such chemical processes as condensation and polymerization. I am convinced that the subject of retention-acid toxemias furnishes a most promising field for pathological research, particularly in the matter of the various fibroses, as certain rheumatisms, arterio-fibrosis, etc. It is not to be understood that all these retention acids are the result of pathological states of the liver, but that many of them are can scarcely be doubted.

In No. 1, Vol. 5, of *The Journal of Experimental Medicine*, for October 1, 1900, appears a very interesting and able article by Dr. Helen Baldwin, of the laboratory of Dr. C. A. Herter, of New York, entitled "A Study of Oxaluria, With Especial Reference to Its Fermentative Origin." From a very hasty reading of the article, I think I should venture to disagree with some of the conclusions of the writer, except in so far as they apply to the preformed oxalates as supplied in the food.

Conclusion 6 reads: "In health, no oxalic acid or only a trace, is formed in the body, but that present in the urine has been ingested in the food."

Conclusion 7: "In certain clinical disturbances which, in some of the cases studied, were associated with absence of free hydrochloric acid from the gastric juice, oxalic acid is formed in the organism," And:

Conclusion 8: "This formation in the organism is connected with fermentative activity in the alimentary canal."

If conclusion 6 could be made to read that, in health, there is little or no accumulation of oxalic acid, there could be no objection to it from my point of view.

The fact that oxalic acid is found among the products of the hydrolytic decomposition of proteid, as demonstrated by Schutzenberger, Hlaziwetz and Habermann and others, and also that it is found among the oxidation products of the same material, by Baumann and others, would seem to justify the conclusion insisted on this evening that not only oxalic acid, but all other acids similarly found, are really under-oxidation products of physiological waste. Clinical facts pointing to the same conclusion are: the appearance of oxalic acid, as also lactic, diacetic, B-hydroxybutyric acids, and acetone and others, all sub-oxidation, condensation or polymerization acids originally occurring in physiological series—in experimental glycosuria by deprivation of oxygen as well as in true diabetes.

The frequently observed temporary increase of oxalic acid in diabetic urine, concurrently with a temporary decrease in the glucose, would indicate occasional attempts at a more complete oxidation.

Each organ of elimination would seem to be practically limited in its excretory powers to waste material, which has either been burned to an ash which it can dispose of, or which can be so modified by the organ's internal secretion that it can be thrown off without difficulty. Anything short of such a point in combustion is clinker, and, as clinker, fails of successful elimination, setting up by its retention, or in the process of forced excretion by other channels, more or less irritation, and interfering, to a greater or less degree, with proper oxidations elsewhere.

Of course it is true that oxalic acid—and other fatty acids as well—as found in the urine after proteid feeding, is a product of fermentation, *i. e.*, hydrolysis, as in Schutzenberger's laboratory investigations, but as the result of a fermentation of carbohydrates, pure and simple, and apart from the hydrations and oxidations which are so inseparable from the life functions of the living cells, it is difficult to see how it or any of them can be so produced.

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THE DIFFERENTIAL DIAGNOSIS OF THE MORE COMMON DISEASES OF THE LIVER.

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In this paper are considered certain diseases of the liver, which involve changes in the size, shape and consistence of the organ. Judging from personal experience, the more common of these are, in order of frequency, passive congestion, atrophic cirrhosis, carcinoma, syphilis, and amyloid disease.

1. *Passive Congestion of Liver.*—Passive congestion, the condition which ultimately results in a nutmeg liver, is due to the presence of an obstruction to the blood flow through the right ventricle, with damming back of the blood into the inferior cava. Consequently it is most common as an indirect result of chronic valvular disease, especially mitral stenosis; less frequently it is a sequel of pulmonary emphysema or cirrhosis, or the pressure of an intrathoracic growth upon the inferior cava.

Upon physical examination the liver is found to be enlarged, the lower border extending, perhaps, as far down as the navel. Its surface is smooth, and its consistence notably increased. There is a feeling of weight and discomfort, and the swollen liver is usually tender. Gastro-intestinal disturbances are common. Slight jaundice, clay-colored stools, and scanty, bile-tinged urine, of high specific gravity, are not uncommon findings. The spleen is often enlarged; there is occasionally vomiting of blood, and in advanced cases ascites, followed by general edema, may ensue. If the condition is due to valvular disease, and relative tricuspid incompetency has occurred, the liver may visibly pulsate.

There is rarely any difficulty in the diagnosis, although the condition is not infrequently overlooked. The presence of one of the known causative conditions, and the finding of the enlarged liver, will usually be sufficient. Additional and important corroborative evidence consists in the variations in the size of the liver, which are, at times, very marked and rapid. Rest in bed, wet cups over the liver, the use of cardiac stimulants, and the draining of the portal circulation by mercurial purgatives, will not infrequently cause a recession of the lower border of the liver, well up to the costal margin, within twenty-four or forty-eight hours.

2. *Atrophic Cirrhosis of the Liver*.—Atrophic, or, as it is often called with reference to its most common cause, alcoholic cirrhosis, is a painfully frequent finding, and any reference to its signs and symptoms, except for the sake of completeness, is almost unnecessary. The early symptoms are usually those of a chronic gastric catarrh, followed variously by epistaxis, hematemesis, melena, bleeding hemorrhoids, and, finally, ascites. Jaundice, if present at all, is usually slight. The urine is scanty, high colored, loaded with urates, and often contains bile pigments. Upon inspection the caput medusæ, and other distended veins of the abdomen, especially the mammary and epigastric, may be visible. The liver is at first enlarged, perhaps to a very considerable degree; later it shrinks, although—and this is a fact to be noted—the reduction in size may be very slight. Its lower edge is firm and hard, and its surface may be finely granular. Ordinarily, the spleen is sufficiently large to be palpable.

In the majority of cases the diagnosis of this condition is readily made, but there are certain possibilities of error. Owing doubtless to the mental influence of the name “atrophic,” it is not sufficiently recognized that the liver may not only be much larger than normal during the early stages, but may remain large—at least to palpation—until the end, or undergo but a very slight diminution in size. For this reason cases have been encountered in which a diagnosis of “hypertrophic” cirrhosis has been made, the subsequent course of the disease proving it to be the ordinary atrophic variety. If, however, it is borne in mind that atrophic cirrhosis occurs mainly in men over 40 years of age, and that there is usually an alcoholic history, while hypertrophic cirrhosis commonly affects men under 40, occasionally children, that there is usually not a history of alcoholism, and that ascites and enlarged abdominal veins do not occur, this mistake should rarely be made.

It may be quite impossible to distinguish the initial enlargement of a cirrhotic liver from fatty degeneration, and very infrequently cancer and cirrhosis may be associated. In the latter case the diagnosis is usually made by autopsy. I recall one case, proved by its subsequent course to be one of atrophic cirrhosis, in which the liver was so large, and so irregular and nodulated, that it was strongly suspected to be carcinomatous, although there was enormous and rapidly recurring ascites. But in spite of the absence of a distinctive history or characteristic lesions, the irregularity in shape was doubtless due to syphilis, the most common cause of an abnormally-shaped, atrophic liver.

Incidentally may be noted the possible development, during any stage of the disease, of intense headache, noisy delirium, amaurosis, convulsions, stupor or coma—symptoms closely resembling, and usually supposed to be, the cerebral symptoms of uremia, but due to an unknown toxic agent.

3. *Carcinoma of the Liver*.—Occurring most commonly in men over 40 years of age, carcinoma of the liver is next in frequency to carcinoma of the stomach and uterus. It is usually secondary, especially to malignant disease of the stomach and rectum, or, in women, to mammary carcinoma.

The principal symptoms are anorexia, vomiting, and progressive emaciation and loss of strength. In 50 per cent. of the cases there is jaundice, usually slight, sometimes intense. Ascites occurs in but a small proportion of instances, and the spleen is seldom enlarged. During the later stages, moderate fever (100° - 102°) is not infrequent; rarely chills, and high intermittent fever, may occur. Almost invariably there is a marked cachexia, with anemic edema of the lower extremities toward the close of the disease, and, at the same period, toxic cerebral symptoms may become manifest.

Physical examination shows enlargement of the superficial veins, and distention of the upper portion of the abdomen. If the emaciation is marked, the nodular character of the enlarged liver may be evident by inspection. The organ is found to be greatly increased in size, its margin lying perhaps below the navel, and moving with respiration. Usually the liver is hard, irregular and nodulated, each nodule sometimes presenting a characteristic depression or umbilication in its center. When the growth is mainly in the left lobe, the latter may resemble a distinct epigastric tumor. In rare cases the liver is uniformly enlarged and smooth, lacking nodulation. The duration of the disease is from three to fifteen months, rarely two years.

The cardinal symptom of hepatic carcinoma is the enlarged nodular liver, plus cachexia. Previous or present carcinoma of other organs (stomach, intestine, rectum, mammary gland) with jaundice and, perhaps ascites, confirm the diagnosis. Age and heredity are suggestive.

If the liver is diffusely carcinomatous, and the enlargement is smooth and uniform, a variety sometimes encountered, it may require differentiation from amyloid, or fatty liver. The presence of jaundice, the rapid increase in the size of the organ, and the development of a marked cachexia, will pronounce for malignant disease.

The large, nodulated, hydatid liver may resemble that of carcinoma, but in the former the duration of the disease is much longer, the wasting and anemia are much less marked, the nodules are softer, jaundice is more common, aspiration may enable the finding of hooklets, and, finally, it is of rare occurrence.

The large, syphilitic, amyloid liver, containing irregular or projecting gummata, may be difficult to separate, as the jaundice may be marked, and the organ greatly enlarged. But the history, or evidence of syphilis, the longer duration of the disease, and the slighter impairment of the general health, will negative malignant disease.

Hypertrophic cirrhosis, in the early stages, cannot always be distinguished from carcinoma. Reliance must be placed upon smooth and painless enlargement of the liver, the presence of an enlarged spleen, and the non-appearance of the cancerous cachexia.

Whether the malignant disease of the liver is sarcoma rather than carcinoma, as sometimes happens, cannot be decided unless there is a primary sarcoma elsewhere. The primary growth is usually a melano-sarcoma of the eye, lymph-glands, or skin, and, if secondary deposits occur in the liver, there may be melanuria, which, with the presence of the original tumor and the very rapid increase in the size of the liver, may enable a diagnosis.

It is hardly possible to determine positively whether carcinoma of the liver is primary, or, as usual, secondary, unless the primary growth can be discovered.

A case of considerable diagnostic interest was seen about three years ago. The patient was a man of middle age, with an extremely sallow skin, and a slight icteric hue of the conjunctiva. There was no marked emaciation or weakness. He complained of indefinite abdominal distress. Six or eight months previously he had had an attack of sudden and severe abdominal pain, with obstinate constipation, lasting for two or three days, finally relieved by purgatives. Since that time the bowels had been sluggish, but fairly regular. Physical examination of the abdomen revealed an ovoid tumor to the right of, and a little above, the umbilicus. This tumor was moderately movable by palpation, and slightly movable with respiration. The liver, as a whole, was considerably enlarged, and the tumor lay just below the lower edge of the liver. There was also a smooth, rounded prominence in the epigastrium, which pulsed quite dis-

tinctly, the pulsation ceasing in the knee-hand position. This was evidently an enlarged left lobe of the liver. The accessible surface and edge of the liver was perfectly smooth and not nodulated. There was slight fever.

The diagnosis seemed to lie between an impacted gall-bladder, with obstruction of the common duct, and a malignant growth of the intestine, with secondary involvement of the liver. Exploratory operation proved that the latter was the correct diagnosis. The small, ovoid tumor sprang from the anterior wall of the ascending colon, just below the hepatic flexure, in such a manner that there was but little narrowing of the lumen of the intestine, thus accounting for the absence of symptoms of chronic obstruction. The acute attack of obstruction, noted in the history, was doubtless due to a temporary kinking or twisting of the colon at the seat of the new growth. The secondary deposits in the liver involved mainly the under surface of the left lobe, which was irregularly nodular, but the nodulation, from its position, was not accessible to external palpation. The patient lived for several months after the operation, cachexia, emaciation and asthenia supervening.

4. *Amyloid liver* occurs most frequently as a result of chronic suppuration in tuberculous disease of the bones, especially of the hip-joint or vertebræ; next, most commonly, it is due to syphilis, particularly syphilitic ulceration of the rectum and disease of the bones. Less often it is associated with rachitis, carcinoma, and infectious fevers.

The symptoms are not distinctive. The liver is uniformly and greatly enlarged, smooth, solid, firm, and not tender. The margin is usually rounded, but may be sharp and firm. The spleen also is enlarged from associated amyloid disease. Jaundice is absent, the stools may be light-colored, but contain bile, and there is no ascites or other evidence of portal obstruction. As an amyloid kidney usually co-exists, the urine often contains serum-albumin, and also serum-globulin, with abundant casts.

The diagnosis, except in the rare instances when the amyloid liver is not enlarged, is readily made. The cardinal symptoms comprise a great and steady enlargement of the organ, in conjunction with chronic suppuration, syphilis, or chronic phthisis.

5. *Syphilis of the Liver*.—Syphilis of the liver may manifest itself as a diffuse syphilitic hepatitis, mainly in the congenital form of the disease; or the capsule of the organ and the overlying peritoneum may become thickened and fibrous, or there

may be localized or general gummatous deposits in the substance of the organ.

Clinically, the symptom-group may be that of alcoholic cirrhosis, or of amyloid disease, both of which have been considered. The diagnosis of the specific nature of the pathological changes depends upon the finding of a reliable history of syphilis, or the discovery of the signs of past or present lesions of the disease in other organs or parts of the body. If, in a case of atrophic cirrhosis, the liver is found to be notably irregular in shape, it is reasonably certain to be of syphilitic origin. Pain and tenderness, sometimes pretty strictly localized, are not uncommon in the syphilitic liver. In comparatively rare instances hepatic gummata may be of such a size, and grouped in such a manner, as to suggest a tumor of the right or left lobe of the organ, and if no other evidence of syphilis are present the diagnosis will remain in doubt.

The best marked instance of a syphilitic liver which has been met clinically, occurred in the person of a man of 30 years of age, who undoubtedly acquired the disease by accidental inoculation. The liver was enlarged and irregular, and presented several rounded, hemispherical, somewhat tender prominences. The kidneys had undergone amyloid degeneration, as evidenced by a marked polyuria (166 oz.), with much albumin and many casts. There was a very large daily output (700 grains) of urea. Although there was in this patient no history of an initial lesion, there had been a double sciatica (so-called), and there were tibial nodes, coppery scars of old leg ulcers, and some circular scars on the forehead. The case was of unusual interest because of the fact that in addition to the renal and hepatic symptoms the patient was much emaciated, and had had for several months a severe cough, with copious expectoration and a constantly elevated temperature, so that a diagnosis of pulmonary tuberculosis had been made. But the pulmonary physical signs were indecisive, and no tubercle bacilli were discovered in the sputum, so that I ventured to make a diagnosis of pulmonary syphilis. This opinion was confirmed by seeing, at a later date, an article by Janeway, in which attention was drawn to the occasional presence of fever and pulmonary symptoms in the tertiary stage of syphilis, causing an incorrect diagnosis of phthisis pulmonalis.

DISCUSSION.

Dr. Frank E. West: It has been stated that Henry Ward Beecher once said that the liver was the seat of

the devil, and I must say that in my attempt to reconcile and comprehend the theories of Bernard that I have been led to agree with him; for when I got through I must confess that I was in anything but a saccharine condition certainly, and never clearly comprehended just where I did stand, but I expect that as soon as I have an opportunity to read the papers on the physiology and the bio-chemical relations of the liver, I will be thoroughly established in the knowledge.

The paper of Dr. Butler on the diagnosis of common diseases of the liver I was especially interested in. It seems to me that he stated the subject in a very concise and complete manner. There were one or two points that occurred to me in connection with some of the diseases. A differential point, as it occurred to me, which appears between the atrophic and hypertrophic form of cirrhosis, was the infrequency of jaundice in one and the frequency of it in the hypertrophic form, and the fact that very often when it does occur in the atrophic it is much less intense in its character. Furthermore, with the atrophic form, inasmuch as it is especially likely to occur in the alcoholic, we are very likely to have other organs involved; the kidneys very often undergo the same change, so that we are often able by examination of those organs to determine the presence of a similar pathologic change in them, tending to confirm it.

There is in this condition also often a diminution in the elimination of urea, whereas in the amyloid form you frequently get a decided increase in urea.

I remember the first two cases of disease of the liver where I made a diagnosis of an enlargement, and had an opportunity to test my diagnosis at the autopsy. I do not think it is always an easy matter to examine a liver and determine exactly as to its size. I certainly, from that instance, was convinced that it was not, in my experience, for in both of these cases on autopsy the livers were found smaller than normal; however, I took a little uncton to myself in one, it being an enlarged liver due to cardiac disease in the form of passive congestion, on ascertaining the fact that after death the liver frequently became smaller than normal.

Now, a word or two as to catarrhal jaundice. In the treatment of that condition calomel was alluded to. My personal experience with calomel has been anything but satisfactory in this condition, and it seems to me theoretically so, for the reason that calomel does not act at the point that you wish to

attack. Calomel simply increases the secretion of the intestinal glands in the upper portion, and is not a true cholagogue by any manner of means. The employment of cathartics generally, in my hands, has not been satisfactory. In a simple catarrhal jaundice, my experience is that one of the best agents that we can employ is hypophosphate of soda, regulating the diet and the administration of considerable fluid as well.

In conclusion, I simply wish to speak of intestinal antiseptics. I am not an iconoclast—I do not wish to appear as that—but the subject has been so thoroughly covered that I would not go into the general subject, and the intestinal antiseptics have been alluded to. I believe in them, and I believe in many instances they accomplish a great deal of good, but I wish simply to cite a personal experience that has come to me recently, perhaps influencing somewhat one's estimate of their value. I have just gotten through treating a case of typhoid fever, the patient having recovered after a four weeks' illness, who was taken ill in the middle of June and consulted a physician, who told her she had intestinal indigestion and put her upon 5 grains of salol, three times a day. Between June and the time she was taken sick with her typhoid fever she had taken 250 tablets, of 5 grains each, of the salol. Salol, by most of the authorities, is regarded as our most reliable intestinal antiseptic, one which escapes or passes through the stomach unchanged, and exerts its effect directly upon the intestinal tract; so that, notwithstanding the fact that this young lady had taken salol all summer, she, in the fall, comes back with typhoid fever.

AN ADDRESS BEFORE THE ALUMNI ASSOCIATION OF THE LONG ISLAND COLLEGE HOSPITAL.

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Mr. President, Ladies and Gentlemen:

I wish to make acknowledgment of the honor you have done me in asking me to address you this evening. There have long been close personal ties between the Long Island College Hospital

and the University of Michigan. For many years, that incomparable teacher of Anatomy, Corydon L. Ford, lectured in both schools. Some of you can doubtless recall his strong, kindly face, his clear, bright eyes and his distinct intonation as he stood before you, cutting the leaves and reading from that book, that tells how wonderfully man, created in the image of God, is made. To have known him was a privilege; to have been his pupil was an inspiration. A gray-haired physician, who has won an honorable position in the profession, said to me only a few days ago, "Whenever one of the boys failed to answer a question in anatomy he immediately felt that he had not shown Prof. Ford the respect due him."

Another eminent medical teacher came to you from the University of Michigan bringing with him a noble personality and years of ripe experience. I refer to Dr. Samuel G. Armor, and possibly there are some here to-night who were privileged to sit at his feet

That gifted physiologist, Henry S. Cheever, whose promising life was cut short by death, and that surgical genius, William Warren Greene, served both schools with credit to themselves and honor to the institutions. Another eminent surgeon and excellent teacher, Alpheus B. Crosby, lectured in both schools, and the University of Michigan obtained from your faculty the most charming medical lecturer that ever instructed its students in the person of the late Edward S. Dunster.

That great and good man, who conferred distinction upon your school and your city by his brilliant professional attainments and his noble character, and whose untimely death you now mourn, was a student in the University of Michigan, and we join you in your sorrow for him. When I received your kind invitation to meet with you, I had not learned of Dr. Skene's death and one of the pleasures that I anticipated in accepting was that I might again see him. It is an honor to your school to have had Dr. Skene on your faculty, and I am sure that the young physician who follows the example of this worthy master in medicine will become an honor to his profession.

Besides these honorable men who are no longer with us, the medical profession of the Borough of Brooklyn has among its most worthy representatives many who received a part or the whole of their undergraduate medical education in the University of Michigan. Their works and their lives are known to you, and of them both you and we are proud.

PRESENT DAY MEDICAL DELUSIONS.

The century now fast sinking into the tomb of the just is distinguished from all its predecessors by the great advances made in the physical and biological sciences. In the great progress that has been made in learning, medicine, which is the utilization of those facts, gathered from the various sciences, that may serve in the prevention or cure of disease, has not failed to keep in the van. Many of the great epidemic diseases have been robbed of their horrors. Macaulay tells us that before the discovery of vaccination for smallpox it was a rarity to meet on the streets of London one whose face was not marked by this disease. Now, a person so marked, is seldom seen, and the mortality from this disease, where vaccination is properly practised, has been reduced almost to zero. During the present century, the plague, which in some of the great epidemics of the past destroyed one-fourth the population of the then habitable world, has practically been confined to those peoples who have not been able on account of ignorance to avail themselves of the benefits of modern sanitary science. The present decade has seen both the plague and Asiatic cholera arrested at the gates of our Nation and forbidden entrance. The discovery and therapeutical use of the cinchona alkaloids have largely stripped the malarial parasite of its harmful properties and have enabled the agriculturist to defy the miasm of the marsh and to convert waste places into flowering gardens and fertile fields, while more recent investigations into the life history of the malarial organism give promise that the tropical world will soon become a healthful place of residence for the Caucasian race. Typhus fever, while once greatly swelled the death list, is now practically unknown among the most enlightened nations. The mortality from typhoid fever has within less than fifty years been reduced two-thirds, and when man ceases to pollute the water he drinks, the food he eats and the air he breathes with his own excretions, this disease will no longer exist. The discovery and use of diphtheria antitoxin has within six years reduced the mortality from this disease to about one-third of what it was previous to that time. Even tuberculosis, the great white plague to which one-seventh of all man now succumbs, is slowly yielding to the advanced knowledge of scientific medicine. Isolation and disinfection are reducing the number of deaths from the infectious diseases in general. Asepsis permits the rapid healing of wounds and enables the surgeon to explore every cavity of the body, and surgical anesthesia lays the hand of a comforting angel on the brow of

suffering man and lifts the curse of the pains of maternity from the daughters of Eve. All this and much more has been accomplished within recent years by scientific medicine. And yet, notwithstanding the general enlightenment of the present time, pseudo-medicine has its crafty priests, who grow fat on the numerous morsels fed them from the tables of the credulous rich, and clothe themselves in costly raiment purchased at the expense of the deluded poor.

It is my purpose this evening to say a few words concerning two forms of pseudo-medicine which have at the present time some considerable following in this country. In discussing this subject I shall devote but little time to those who are financially interested in these so-called schools of medicine and shall dwell more at length upon the more interesting question of the conditions that give them a following.

Osteopathy is said to have been "discovered" by one, A. T. Still, a resident of Kirksville, Mo., who established the American School of Osteopathy which now has several imitators in various parts of the United States. The legislature of Missouri has granted to the American School of Osteopathy a charter, which makes it a corporation, the board of trustees of which consists of A. T. Still, Harry M. Still, Chas. E. Still, Blanche Still and Herman Still. It will be seen from this that the school is a family affair. The charter grants to this board the power of succession and gives it authority to fill all vacancies and to increase the number of members. Article five of this charter is as follows: "That said board of trustees and their successors for a period of fifty years shall have full power and authority to appoint a faculty to teach such sciences and arts as are usually taught in medical colleges, and in addition thereto the science of Osteopathy; to fill vacancies in the faculty, to remove the same, to declare the tenures and duties of all officers and teachers and fix their compensation therefor; to provide a suitable building and furnish the same, and to fix the amount of tuition to be paid by students, the number and length of terms students shall attend such college before graduating, the qualifications necessary to admit students into such college; to grant diplomas to all graduates who shall have passed examinations satisfactory to the board of trustees and faculty in each and every branch required to be taught and studied in the curriculum of said college; and to make all by-laws necessary for carrying into effect the objects of this corporation

not inconsistent with the laws of the State of Missouri and the constitution thereof."

It will be seen from this article that the charter grants extensive privileges to the Still family. In short, as Judge Toney said, "The charter establishes a corporate Still syndicate, a *Still* trust in Osteopathy, at Kirksville, Mo."

This school has recently been legally investigated in an action in which one of its graduates attempted to compel the State Board of Health of Kentucky to grant him a license to practise. It was found in this legal investigation that the faculty of the school consisted of fifteen professors, four of whom are members of the Still family and only three of the fifteen are medical graduates. One of the latter admitted on the witness stand that he was a sufferer from a loathsome, venereal disease and that he is under several indictments in Chicago for felonies and that he has also been indicted in Adair County, Missouri, for felony. At the time of this suit the only method of teaching anatomy was by pictures thrown on a screen and the college possessed only one cadaver, "which was by the embalming process rendered so hard that it was useless for anatomic analysis, and that the only way of making an impression on it was with a cold chisel." All this, ladies and gentlemen, is a matter of court record, and from this and similar schools of so-called Osteopathy come the graduates of this so-called science, who in many states are not only tolerated, but are exempted from any form of examination, while the honest student of medicine after spending four years in the best schools, equipped with expensive laboratory facilities, supplemented by great hospitals, under the tutelage of learned men, must pass a severe examination before a State Board, before he can hang out his shingle. The osteopath is supposed to cure disease by manipulation of joints of the anatomy of which he has no knowledge. He claims to be able to alter the nutrition of nerves, the anatomical relations of which he does not know and of whose function he is as ignorant as I am of the color of the chariot in which Pharaoh is said to have driven to his watery grave in the Red Sea. In my state, Michigan, the barber, who shaves me, must pass an examination before a State Board before he can lather my face, but the so-called doctor of Osteopathy can manipulate an injured spine and inflict weeks of intense suffering upon an ignorant man who is not able to protect himself from the credulity of his friends.

Another of the schools of pseudo-medicine that flourishes in this enlightened age is so-called Christian Science. The great

high priestess of this cult is a Mrs. Eddy, who claims to have discovered the system in 1866. She has written a book in which she denies that medicine has lessened sickness or prolonged life. She states that this is shown by the reputed longer lives of the old Hebrew patriarchs. Mrs. Eddy says that she was called by God to proclaim His gospel to this age. "In 1881 she opened the Massachusetts Metaphysical College in Boston under the seal of the Commonwealth; a law relative to colleges having been passed which enabled her to have this institution chartered for medical purposes." She states: "No charters were granted to Christian Scientists for such institutions after 1883; and up to that time, hers was the only college of this character which had ever been established in the United States, where Christian Science was first produced." It appears from this that Christian Science monopoly is more limited than that of Osteopathy, and in order, I suppose, to make the monopoly more effective Mrs. Eddy closed her college in 1889 "at the height of its prosperity after having instructed some four thousand students." She states that God graciously devoted several years to fitting her for the final inception of the absolute principle of scientific being, and of healing. The fundamental proposition of her philosophy she states as follows:

"God is all in all.

"God is good, Good is mind.

"God, Spirit, being all, nothing is matter.

"Life, Good, omnipotent good, deny death, evil, sin, disease.

"There is no pain in truth, and no truth in pain; no nerve in mind, and no mind in nerve; no matter in mind, and no mind in matter; no matter in Good, and no good in matter."

A general belief in Christian Science and the adoption of its teachings would soon multiply our death rate many times, and if persisted in would exterminate the race. Suppose that Greater New York should be governed in accordance with the above mentioned principles, what would happen? The sanitary service of the port of New York would be abolished. There would be no further inspection of immigrants, or disinfection of vessels from infected ports. There would be no attempt to exclude Asiatic cholera, the plague, yellow fever or any other communicable disease, because according to the tenets of Christian Science there are no pathogenic bacteria. Mrs. Eddy says: "When there are fewer doctors and less thought given to sanitary service, there will be better constitutions and less disease." There would be no isolation of those ill with smallpox, diphtheria, scarlet fever and kindred

diseases. There would be no need of sewers and you would not be compelled to maintain an army of street cleaners. Garbage would be allowed to decay in the houses and streets, because, according to Christian Science, filth cannot cause disease. There would be no supervision of your milk supply, and the butcher might sell you diseased or decomposed meat without fear of the law and without rebuke from his own conscience, because "nothing is matter," and "matter is nothing" and disease is only a mental state. You need not bathe, because filthiness of body cannot be, inasmuch as the body is matter and matter is nothing. The motor-man may mangle as many pedestrians as he pleases, because "there is no pain in truth, and no truth in pain."

If disease be imaginary, why is it that it is always associated with pathological changes in some part of the body? If disease is only imaginary, why do the lower animals and even plants suffer and die from disease? Do plants commit sin and are they possessed of imagination? A few months ago I was called to see a woman with an inoperable sarcoma. I found at her bedside her sister, a practitioner of Christian Science. I said to her, "Cure your sister and even I will believe." Her reply was that her sister did not have faith. If the mind be all and matter naught, why did she not give her sister faith? If disease be imaginary and matter be nothing, why is it that a blow on the head causing depression of the bone and pressure on the brain, causes unconsciousness? As one of my colleagues, Prof. McMurrich, has said, "To one accustomed to modern scientific methods and observations, the position of the Christian Scientists is impossible. Their belief is merely one of ancient medicine dressed up in theological vestments, a theory, which dating back to barbaric fetchism, has reappeared from time to time to survive only a fuller knowledge showed its inconsistencies and fallacies."

Certainly there is neither Christianity nor science in this cult.

It is said that the most warty toad carries a jewel in its head, but so far as I know no one has ever found the hidden treasure. In every pound of falsehood there is said to be a grain of truth, but this is no reason why we should accept the false. Every bushel of chaff may contain a few kernels of wheat, but nevertheless the chaff does not make good bread. For untold centuries man has striven to isolate the good from the bad, and yet there are thousands to-day who are encouraging these forms of pseudo-medicine which, if they ever secure general approval and adoption, will destroy civilization and return mankind to a state of super-

stitution and barbarism from which it has taken him centuries to emerge.

Osteopathy has seized upon one agent employed in medicine for a long time with much benefit. Massage is in properly selected cases beneficial, but when indiscriminately and ignorantly employed it may do great injury.

Suggestive therapeutics in the hands of such learned men as Charcot and Kraft-Elbing has been of benefit, but when employed by the ignorant pretenders of so-called Christian Science its influence is antagonistic to the advancement of men.

Osteopathy is a meaningless term selected by a shrewd charlatan, and Christian Science is a product of the disordered brain of a sacrilegious egotist.

I now turn from these so-called sciences and their originations to their devotees. Per se, neither the Osteopath, Still, nor the Christian Scientist, Mrs. Eddy, is worthy of any serious consideration. A man who associates himself with one who has to admit that he is a syphilitic and is under indictment for felony may be a fit subject for investigation in a criminal court, and the woman who proclaims that she has received a special revelation may suggest the creation of a commission in lunacy, but neither is worthy of any serious consideration from us were it not for the fact that each of these cults has a considerable following. This is a serious matter and worthy of the intelligent study of all who are interested in the welfare of the race. Nations, as well as individuals, become diseased. Epidemics of madness sometimes prevail. Communities may suffer both physical and mental decay. The progress of civilization is not constantly upward in a straight line, but it often takes a curved course in which the descents are quite as marked as the ascents. Each generation is not better than the preceding one, and indeed a very disreputable son may come from the loins of an honest father. The child may resemble his grandfather more closely than he resembles his father. Cultivated plants and domesticated animals when removed from the intelligent care of man tend to revert to the condition of their wild ancestors. Atavism is a frequently observed phenomenon, and man is not free from its influence. Was not the Alexandrian library destroyed? Were not the master-pieces of Greek art neglected and finally buried in rubbish heaps by the ignorant, savage descendants of Plato and Aristotle? Did not Goths and Vandals fill the palaces of the Cæsars and the Eternal City fall into decay?

I regard the present widespread belief in pseudo-science as a form of atavism, a tendency to reversion to that state in which man read his destiny in the stars and regarded disease as a visitation from heaven. Please permit me to say that I am not a pessimist and that I do not believe that this pathological condition is going to spread to the great mass of thinking people in this country. I have no fear of this, but as a mental epidemic it offers an interesting study. Its etiology, pathology, and treatment, both prophylactic and curative, are proper matters for scientific inquiry.

Some of the more important etiological factors may be stated as follows:

A tendency to reversion to the methods of thinking that guided our ancestors is probably the most important factor. Civilization is not yet very deeply imbedded in mankind. We must not forget that it was not longer ago than 1712 when the last conviction for witchcraft occurred in England, the last execution for the same cause in Scotland was in 1722, and in Germany in 1793. The last decade of the seventeenth century found our New England ancestors vigorously prosecuting witches. In 1691 and '92 they executed nineteen persons convicted as witches. One of these was stretched on his back and weights placed on him. He was fed on alternate days with bread and stagnant water until he died. With the close of the seventeenth century our progenitors stopped killing so-called witches, but they did not stop believing in them, as is shown by the histories of "Moll Pitcher," "Dame Hooper," "Mother Danforth," and others. Modern spiritualism and Christian Science demonstrate that we are still closely related to our ancestors. So-called Christian Science is a kind of atavism which places us along with those of the first century who worshiped Isis and with the medicine man of the aborigines of this country.

Imperfect education is another prop in the support of these forms of pseudo-medicine. Many people without any knowledge of true science cannot distinguish between mere assertion and real evidence. They read much, but are not able to distinguish between the true and the false. The more loudly and more irrationally an assertion is made the more ready credence does it find among the half educated. The followers of Christian Science claim that many wonderful cures have been wrought by the practitioners of this cult. The same claim is made by the vendor of every quack nostrum. The claim has just as much weight in one case as in the other, and in both it is utterly worth-

less. No case, which is pathologically incurable, has ever been permanently benefited by either the nostrum of the advertiser or the practise of the Christian Scientist. In the first place, the Christian Scientist knows nothing about the science of pathology; he does not claim to do so. He cannot distinguish between a cancer cell and a grain of starch, and he would not know a tubercle bacillus from a defect in the glass. He is incapable of distinguishing between curable and incurable pathological condition. If the Christian Scientist was honest, he could easily test the validity of his claim as scientific men do. When Pasteur announced that he had a vaccine for anthrax, he demonstrated the truth of his claim by vaccinating some members of a herd of cattle and then inoculating the whole herd with the bacillus of the disease. The unvaccinated died, the vaccinated lived. When Jenner thought that cowpox might protect against smallpox, he inoculated a boy with cowpox and subsequently inoculated him with smallpox. Behring and Roux demonstrated the value of diphtheria antitoxin by injecting the toxin into animals in sufficient quantity to kill and then treating some of them with the antitoxin while others were left untreated. The treated ones lived, the others died. If the Christian Scientist believes what he says, let him send a number of his followers into some malarial climate and let them become infected with the malarial parasite; let him demonstrate the existence of the parasite in the blood and then let him cure them by his so-called science. Until he makes some such demonstration, he can have no claim to scientific knowledge. In this proposed test he cannot assert that lack of faith leads to failure to cure, because I propose that Christian Scientists shall be inoculated with the malarial parasite. If he goes as far, as some of this sect do, and thinks that the lower animals as well as man are fit subjects for his practice, let him go to some bacteriological laboratory and ask that a dozen animals be inoculated with the bacillus of tuberculosis, diphtheria, anthrax, or some other disease, then let him practise his art or his magic, whichever it may be called, upon half the number while the other half are left without such aid. If he be honest in his claim, he cannot object to being called upon to make such a demonstration. Until he submits his claims to some such test as this, they must remain devoid of respect from the educated. Until he does this, he is no scientist, nor can he be regarded as truthful, and consequently not a Christian.

A third factor in the etiology of pseudo-medicine lies in the wonderful advances recently made in scientific medicine. The discovery of diphtheria antitoxin, of the effects of thyroid feeding in myxedema, of the value of attenuated germs in inducing immunity, of the phenomenon of agglutination, each has been seized upon by the unscrupulous to delude the half educated, who are not able to distinguish between the unexpected and the impossible. Some of the more ignorant of the medical profession have been temporarily entrapped by wily impostors, who have employed scientific discoveries to give color of truth to their absurd claims. This accounts for the somewhat extensive use of advertised lymphs and other preparations in the treatment of locomotor ataxia and cancer. There are always some who are ready to use the discoveries of others as a basis for false claims made by themselves. Indeed, this practice has become so alarming that scientific men sometimes hesitate to announce the results of their own labors for fear of the harmful use that may be made of them by the unscrupulous.

I now turn to the question of treatment for these forms of mental and moral obliquity that manifest themselves among the practitioners and followers of pseudo-medicine. Before doing this, however, I will make a prognosis. As I have already stated, I do not anticipate that pseudo-medicine will attract any large proportion of our countrymen. Certainly, it will not extend beyond the half-educated classes. The majority of the people in this land are neither mental nor moral degenerates. They are neither fools nor knaves, nor will they become the followers of the one or the dupes of the other. It must be admitted, however, that there are many degenerates among us and they are by no means confined to the humbler walks of life. Rapid commercial and industrial progress has lifted many incompetents to places of honor, trust, and dignity which they cannot properly fill. The truth of this is evident in business, in society, in politics, and even in the church; but inasmuch as there is no inheritance of rank or position in this country, these incompetents are usually soon relegated to their proper spheres. I do not mean that every form of fraud meets with its proper punishment, nor that virtue is always rewarded, but so far, in this country, the rule that the best survives holds good.

Time will permit me to dwell only briefly on the proper treatment of fraudulent forms of medical practice. In the first place, a more thorough educational training is desirable. Espe-

cially should this improved and advanced training follow along the lines of modern, scientific hygiene. I do not believe that either anatomy or advanced physiology can be taught with much profit in our secondary schools, but hygiene can and should be taught. Every girl and boy should be instructed concerning the causes of disease and how these causes may be prevented. The causal relation of germs to the infectious diseases is as demonstrable as any fact in elementary physics, and when the four rules of Koch become as well known as the axioms of mathematics, osteopathy, Christian Science, Downieism, and the doctrine of similars will die of starvation. Our modern scientific hygiene is now far in advance of the general knowledge of the public. To many it is simply incomprehensible, but many generations will not come and go before the great benefits of personal, family, municipal, state, and national hygiene are appreciated. True knowledge, and even that of most direct benefit, permeates the masses slowly. Let me cite an example. In 1796 the English physician, Edward Jenner, demonstrated the value of vaccination against smallpox. During the remaining years of the eighteenth century he vaccinated several thousand persons and subsequently inoculated all of them with smallpox, thus demonstrating most conclusively the efficiency of the procedure. With the horror of this most loathsome disease fresh in their minds the people of that generation eagerly sought the protection afforded by Jenner's discovery. Governments aided in the good work. In several countries vaccination was made compulsory. Years passed by, the old generation passed away, and then men wise in their own estimation—men who had never seen a case of smallpox—began to preach that there is no protection in vaccination and that smallpox is not so fearful a disease as it has been pictured. Anti-vaccination societies were organized and in some countries, notably in England, the laws making vaccination compulsory were modified. Soon there grew up a new generation unprotected by vaccination and in 1896, the centennial of Jenner's discovery, there were nearly two thousand deaths from smallpox in Gloucestershire, the county in which Jenner had lived and made his most beneficent discovery. The epidemic raged until fear of death led the people to seek protection in vaccination. This and similar historical facts show how precious true wisdom is and how dearly it is sometimes obtained. If Christian Science and other forms of pseudo-medicine should temporarily gain ascendancy in this

country, epidemics would not be kept out of New York, as cholera and the plague have been, and at the cost of many lives people would again purchase wisdom.

Should pseudo-medicine be suppressed by legal enactments? Has the State the right to suppress pseudo-medicine? On this question Judge Dille of Iowa speaks as follows: "The power and the duty of the States to regulate the practise of medicine have been fully established. It is the inalienable right and imperative duty of the government, by legislation, to promote the health, morals, education, and good order of the people. This right vested in the people in their sovereign capacity, has been likened to the individual right of self-defense, the exercise of which is a part of the law of self-preservation. The police is a plenary power, and may be exercised by the State to regulate or prohibit things inconsistent with the public welfare."

Justice Field of the Supreme Court of the United States, giving a decision with the approval of the whole bench, says: "Few professions require more careful preparation by one who seeks to enter it than that of medicine. It has to deal with all those subtle and mysterious influences upon which health and life depend and requires not only a knowledge of vegetable and mineral substances, but of the human body in all of its complicated parts and their relations to each other, as well as their influence on mind. The physician must be able to detect readily the presence of disease and prescribe medicine for its removal. Every one may have occasion to consult him, but comparatively few can judge of the qualifications of learning and skill he possesses.

"Reliance must be placed upon the assurance given by his license that he possesses the requisite qualifications. Due consideration, therefore, for the protection of society may well induce the State to exclude from practice those who have not such a license or who are found upon examination not to be qualified."

Numerous other eminent legal authorities might be cited, but it is unnecessary, since nearly every State in the union has enacted laws to regulate the practice of medicine. In many States, however, the osteopath and the Christian Scientist are exempted on the ground that they do not practise medicine. What constitutes medical practice is a question about which there has been some discussion. Any one "who shall publicly profess to cure or heal" is considered a medical practitioner by the statutes

of Iowa. Certainly this includes the practitioners of pseudo-medicine and is undoubtedly the common-sense view.

It is the duty of the State to protect the child from the ignorance of its parents. The State does not permit the sale of skimmed milk or adulterated food. No one has the right to either sell or buy such articles. The State must protect the ignorant against the unscrupulous. The statute makes an attempt at suicide a crime. It is the duty of the State to prohibit the treatment of the sick by the administration of drugs or by the laying on of hands, or by any form of magic, by those who have no knowledge of the anatomy and physiology of the body. Does the government permit men who have no nautical knowledge and who are ignorant of the topography of New York harbor to act as pilots and bring boats in or carry them out? Must not plumbers, steam-fitters, etc., pass examinations before they receive a license? Would you carry your broken watch to a man unfamiliar with its mechanism and expect him to repair it? Would you place your sick child in the care of one who is ignorant of anatomy, physiology, and pathology?

ACUTE MYELITIS.

BY EDWARD D. FISHER, M.D.,

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Read at the October, 1900, Meeting of the Brooklyn Society for Neurology,
and in part at the International Medical Congress, Paris, August, 1900.

Definition.—Inflammation of the cord substance.

I think that, perhaps, all writers have taken for granted and, therefore, repeated in their writings the statement of other authors, that this disease is a common affection.

The symptoms denoting destruction of the spinal cord, more or less complete at any one of the segments, are, outside of the early or premonitory stage, the same.

The object of this paper is to discuss the question whether outside of traumatism and infectious diseases of any kind, with specific germ manifestations, there is such a thing as inflammation of the spinal cord, with formation of pus.

In looking over the histories of many cases, and noting such cases as have come under my attention at the hospitals, I have come to the conclusion that simple inflammation of the cord with no history except that of exposure is rare. I believe, indeed, that outside of some infection either of the various infectious, contagious, and epidemic diseases and syphilis, we will find it as rare as encephalitis, or inflammation of the cerebral tissue, which has led to much discussion as to its existence.

It is scarcely necessary before such an audience as this for me to describe the symptoms of myelitis, yet to make our understanding of the subject now under discussion clear, I would say that I mean by myelitis a lesion of the cord destroying at particular segments its functions more or less completely. In other words, below the lesion we have loss of motion, loss of control over the bladder and rectum, loss of sensation with increase of sensation; *i. e.*, hyperesthesia, at the level of the lesion; trophic changes resulting in bed-sores; *i. e.*, destructive necrosis of the tissues, atrophy of the muscles at the line of lesion, usually exaggeration of the reflexes, the latter depending on the location of, and, perhaps, the character of the lesion; *i. e.*, whether complete or incomplete destruction of the cord has taken place. All these conditions occur, whatever the cause of the lesion in the spinal cord, whether tumors, hemorrhages, compression from dislocations or fractures of the spinal vertebra, stab wounds, etc. Indeed, the ultimate picture is the same, the symptoms in general depending on the amount of injury to the cord and consequent interruption or destruction of function rather than the etiological conditions causing this destruction.

In an article on myelitis for the "American System of Practical Medicine" I gave Leyden's classification of myelitis, as follows:

1. Forms of acute myelitis according to the distribution of the lesion:

(1) Transverse myelitis: (*a*) Dorsal myelitis, (*b*) lumbar myelitis, (*c*) cervical myelitis, (*d*) bulbar myelitis, (*e*) myelitis ascendens.

(2) Multiple myelitis (disseminated).

2. Forms of myelitis according to the etiology: (*a*) Traumatic myelitis, (*b*) compression myelitis, (*c*) genuine myelitis: (1) due to infection, as in pregnancy and the puerperal period; (2) through intoxications and poisons; and (3) spontaneous myelitis—*i. e.*, those without known cause.

3. Forms of myelitis according to the clinical aspect: (a) myelitis apoplectica, (b) myelitis acuta, (c) myelitis sub-acuta.

I agree with this author in so far as the distribution of the lesion is concerned; we are, however, now only considering the etiological factors which may produce myelitis. The study of poliomyelitis has aided us largely in this investigation. The various epidemics, which have occurred in late years, of this disease, show us that we are dealing with a distinct germ disease as well defined as that of pneumonia; in fact, frequently the pneumococcus is found, as in spinal or cerebral meningitis. Therefore, on close study, I think we will find that myelitis will be found to occur outside of new growths; specific conditions, as syphilis, or traumatism, mainly when epidemic disease is rife, and that pus inflammation *per se* is rarely present. This question brings up, indeed, the whole question of inflammation—one that has been the subject of discussion for many decades. Could we decide what inflammation is we could more definitely decide this issue. The softening of the cord and the breaking down of its substance cannot be easily explained under the theory of thrombosis and consequent softening. We find this, indeed, but my opinion is that it is secondary to the primary condition. The changes in the nerve-cells precede this breaking down and do not follow the condition as it is found in the cerebral structure where we have long been able to study the effects of softening from obstruction to vessels supplying certain areas. There is not much difference in appearance in the structure of the nerve-cells when the cause is definitely known from those in which the etiological factor remains unknown. Dr. Joseph Collins recently reported a case of myelitis in which the etiological factor was the tubercle bacillus. These were found in the examination and yet, unless I am mistaken in the report of the case, the character of the changes in the cord was similar to that we have always considered inflammation of the cord.

Dr. R. Henneberg, in the *Archiv für Psychiatrie et Nervenkrankheiten*, Bd. 31, Heft 3, reports a case of a woman, aged 30, with a typical history of myelitis, with secondary degenerations, resulting in ataxia of the upper extremities. The autopsy showed softening of the cervical and dorsal regions. The result of his examination is that, excluding syphilis, and not a known phthisical history on the part of the father, the cause of the disease was a trauma received at the age of 17. This

case is most fully reported and brings out many other points of interest.

In the *Jahresbericht in Neurologie und Psychiatrie*, 1899, a number of cases bearing on the subject may be found.

Petren, in speaking of thrombosis and embolism of the spinal cord and its membranes, recites a case of myelitis, without syphilitic history, which followed an abscess of the liver.

Petrucci (reference 113) reports 155 cases, 87 men and 68 women, following an epidemic due to poor water supply. Again, many cases are recorded following influenza, involving both the brain, cord, and membranes.

Nicolaier reports a case of traumatic myelitis, with fair recovery, which one year later showed symptoms of paralysis again, and death. Autopsy showed exostosis of the bones in the region of ix—x, dorsal vertebra, which had caused compression myelitis.

Many cases of Pott's disease could be cited in which similar degeneration and softening of the cord is present.

Apostoli and Planet report an interesting case following grippé, of myelitis centralis acuta ascendens, in which the paralysis was irregularly distributed, with symptoms of disassociated anesthesia of the left side. The autopsy showed involvement of the whole cerebro-spinal system. The author designated the case as myelitis acuta centralis ascendens, and placed it in the same class as polioencephalitis.

Gilles de la Tourette describes a case of acute specific myelitis, although he states that the chronic form is the more common.

In a patient under my care, where the specific history could be directly traced to an infection of the gums from a probably infected instrument in the hands of a dentist, in which a diagnosis of syphilis had been made by an expert dermatologist, a typical case of transverse myelitis resulted, commencing within eight months of the infection. This patient, under strictly specific treatment made a complete recovery, only slight traces of exaggeration of the patella reflexes remaining.

In our study of myelitis from whatever cause, interesting points stand out, and especially in regard to the sensory disturbances. I do not think we can longer hold that syringomyelia alone gives the peculiar symptom complex of disassociation of sensation. Experience shows that in traumatic cases, and all forms of infectious nature, we will find it. This from a physi-

ological as well as pathological standpoint, would seem to be reasonable.

Apostoli and Planet record a case of myelitis from grippe, in which the localization was evidently most marked in the cervical region, the hands and left forearm being wasted. There was some doubt as to the diagnosis, progressive muscular atrophy, neuritis, and amyotrophic lateral sclerosis being suggested, but a distinct loss of control over the bladder and rectum confirmed the diagnosis of myelitis. A complete recovery took place.

A somewhat similar case in regard to distribution and course occurred in a patient under my care, in whom, also, complete recovery took place. A boy, aged 17, was injured at football, in the cervical region. There was, at first, complete paralysis of the upper and lower extremities. In a few weeks there was partial recovery, with marked atrophy of the right hand and arm, and, while all four extremities were still weak, the right leg was most severely affected. The reflexes at the sixth week were excessively exaggerated. The muscles of the right arm and hand showed reaction of degeneration. Sensation was lessened to heat, cold, touch, and pain, but not lost. There was no vesical or rectal paralysis. The patient continued to improve for six weeks, regaining power of the right hand, with disappearance of the atrophy. At this time, following an attack of grippe, the left hand and arm and, to a slight degree, the left leg, became similarly involved, followed by recovery. One and a half years after the injury there is apparently no evidence of the disease. The lesion was evidently in the cervical region, and involved the gray matter most profoundly.

From these cases and others I am led to assume that infective causes and traumatism are more selective in their course than the forms of myelitis due to exposure, or so-called inflammation, the gray matter being more vulnerable, its vascularity making it the more likely seat of infection, and its lesser resistance making it more liable to injury from traumatism. In most cases of myelitis motor symptoms are the most profound, the sensory symptoms being often but partial, and, as you know, the first to be recovered from.

Acute myelitis from syphilis is not rare, the chance of recovery is often good, complete paralysis being followed by recovery, according to my experience.

Acute myelitis from lead or alcohol is not common. Its

direct extension from a neuritis by contiguity seems scarcely probable. When myelitis occurs in these cases it is probable that it acts independently, affecting the cord, either at the same time or subsequently. Alcohol, as observed, at least in a large experience at the city hospital, affects the cord but rarely, while peripheral neuritis is one of the commonest affections in the wards.

Atmospheric pressure changes, as we have them in the so-called caisson-disease, are a good illustration of this form. During the past few years, in the building of the bridge across the East River, several such cases have occurred. Two have come under my personal care, neither of which have, however, come under my personal care, neither of which has, however, come the cases occurring among a class of persons unaccustomed to watching their personal symptoms, the early prodromata were never accurately observed. Such patients date the onset of the symptoms from the time they are practically debarred from returning to their work; that is, from the time in which they find themselves either unable to rise from their beds or are unable to do their allotted task. I believe in most of these cases of caisson-disease one will find that there have been many prodromata preceding the actual paralysis, which have not been seriously considered by the patient. The onset, despite these warning signals, is, however, often quite sudden. We have, in these cases, a direct insult to the spinal cord, as in traumatism. The symptoms are as sudden and acute as in traumatism. The patient has been at work as usual, but, on reaching the surface, with its sudden change of atmospheric pressure, there is probably a loss of arterial resistance, the coats of the blood-vessels give way, and capillary hemorrhage, with more or less complete destruction of the cord substance, takes place. The severity of the resulting symptom depends on the extent of injury done the spinal cord. We have here, therefore, the same question confronting us that we find in every case of traumatic myelitis, or, indeed, of the so-called inflammatory myelitis. The prognosis depends on the degree of the injury received at the onset. The resulting early symptoms are the same in all cases, whatever the etiological factor; in other words, its cause is not so important as the grade of the injury, the amount of the destruction to the integrity of the functions of the cord. We are always dealing in these cases with the spinal cord; whatever destroys any part of it must result in exactly the same symptoms. While it is important to study the

etiology, in order to prevent the occurrence of the disease, yet, after all, for its treatment outside of perhaps syphilis, the etiological factor is of the least importance.

What has been said in regard to the onset of myelitis as to the various etiological factors applies equally to its later development and its later secondary changes. They are in no degree modified by its etiological conditions. Destruction of nerve-cells or nerve-fibers always brings with it the same results. Complete destruction always means absolute and permanent loss of function and secondary changes in the course of the motor and sensory tracts of the spinal cord.

The pathology has already been referred to in describing the various etiological factors, and in speaking of it at this time I shall refer again to my article on "Myelitis." While the morbid changes in the cord are important for our study, the question of greatest interest is the study of the cause of the disease, for only in this may we learn to prevent it.

On inspection the gross changes observed in the cord are softening of its substance, even to complete disfluence, so that all form and structure are lost, and there is no distinction between the white and gray matter. The blood-vessels are dilated, and there is always more or less extravasation of blood from the capillaries, giving a reddish appearance to the cord, called "red softening." However, these terms, red, yellow, and white softening, are misleading, as they would seem to indicate a different inflammatory process, when the real cause of the difference in appearance is dependent alone on the amount of blood extravasated or the stage of the inflammation. In the so-called yellow or white softening, for example, the vascular changes are less marked or resorption is taking place. Besides these vascular changes, the gray matter shows most markedly the destructive character of the process: the cells are destroyed, and there may be considerable loss of substance, leaving spaces in the anterior horns. The white fibers, when the lesion is not a destructive one, are swollen in appearance, so that there seems to be an actual enlargement of the cord at the site of the lesion. In more marked cases, however, none of the fibers can be recognized as such, and the whole substance of the cord appears creamy and pultaceous. Microscopically, we observe various elements of the cord which have undergone degeneration. The cells are at first swollen and enlarged, and the seat of granular degeneration. The processes are often lost and the cell itself vacuolated. The

neuroglia tissue is the seat of inflammatory changes. We observe numerous spider cells or Deiter cells. They are also largely distributed throughout the white substance of the cord. The nerve-fibers are also swollen, and there may be complete destruction of the myelin sheath, the axis cylinder alone remaining, which also later may disappear. In the swollen sheath we find fat globules of myelin, blood-cells, leucocytes, amorphous material, various round cells of doubtful origin, and corpora amylacea. There is evidence of increase of neuroglia-tissue cells. The blood-vessels, especially the capillaries, are very much dilated, and their walls are lined with nuclei. There is often, as seen microscopically, considerable extravasation of blood. The perivascular spaces are filled with round cells, blood corpuscles, and pigment masses. When the inflammation is mild in character there is simply a hyperemia of the cord, with little, if any, extravasation of blood, and the consistence of the cord is very little changed. These changes are not symmetrical nor of equal intensity, certain parts of the cord remaining intact and lying in the midst of softened areas. In transverse myelitis not completely involving the cord the periphery usually escapes; or, again, one side of the cord may also be involved through many segments, as in diffuse myelitis, or only to a limited extent, as in transverse myelitis; or, again, the lesion may be a disseminated one, as indicated in the various forms of myelitis.

The later changes, after the inflammatory process has ceased, show an increase of connective tissue, so that, as the acute process ends and the disease passes into the form of chronic myelitis, we find many shrunken, atrophied cells without processes, ascending degeneration of the sensory tracts of the cord, and a descending degeneration of the motor tracts of the cord. These latter changes are always present where the disease lasts six weeks or longer; in fact, the secondary changes have been estimated to occur as early as the second or third week. While there is considerable difference of opinion as to whether these changes are due to an inflammatory process or result from acute softening from plugging capillaries, I believe the picture found corresponds more closely with the inflammatory theory than with the former. In cases where the disease seems almost epidemic we can probably trace the cause to some infection of a microbic character. The origin is essentially vascular; in some cases the lesion is limited to the anterior horns, giving us poliomyelitis, and in others, as we see, involving the whole transverse

area of the cord, as in myelitis. The changes are similar in both conditions in the areas of the cord affected.

The same can be said of disseminated central and diffuse myelitis. In destructive lesions of the cord, following traumatism or in fractures of the spine or hemorrhage into the cord, the picture of the changes is not dissimilar to that described under the head of acute myelitis, especially in the later stages. The changes in the early stages of the traumatic myelitis seem especially characterized by excessive hyperemia of the cord, the arteries, capillaries, and veins being dilated, and surrounded by masses of round cells and red blood-corpuscles. This infiltration may press the nerve-fibers apart, destroying them, or they may become enlarged and swollen. Even at this early stage the nerve-cells may appear shrunken and have lost their processes. The second stage of the inflammatory process shows a marked decrease in the hyperemia, and evidence of fatty degeneration, which gives the appearance of yellow or white softening. The nerve-fibers now appear smaller and the seat of fatty degeneration involving both the sheath and the axis cylinder. The nerve-cells are in many parts shrunken and destroyed, the walls of the vessels are thickened, and there is marked increase of the neuroglia connective tissue, compressing the nerve-fibers.

In compression myelitis, as in Pott's disease, tumors of the cord, etc., the changes are identical with those of the secondary changes referred to in acute myelitis—increase of connective tissue, thickening of the walls of the vessels, and ascending and descending degeneration in the sensory and motor tracts.

In so limited a paper as this must be necessarily I can only refer to a few of the more urgent symptoms of acute myelitis, and especially those whose significance is still in question.

In regard to the state of the reflexes there is much to be said, but I can only briefly put forth certain views. Physiologically, destruction of any segment, if complete, should result naturally in loss of reflex action at the point of destruction, with exaggeration of the reflexes below the line of lesion. This has been especially investigated in regard to cervical lesions, so that a dictum was supposed to be established, that loss of the patella reflex, with a lesion in the cervical region, signified an absolute destruction of the cord in that region; and, therefore, in the case of injury, precluded any benefit from operative interference. Many cases, however, have been reported, with autopsy, in which this has been at times contradicted, and, again, also confirmed.

Several cases have been under my personal observation in which both sides of this question could have been taken. The last one was a case of fracture at the sixth cervical vertebra, from a fall, in which the reflexes were lost and the autopsy showed destruction of the cervical segment. This same condition can be observed in cases non-traumatic in character. We cannot look upon this in any way as a positive sign of the seriousness of the lesion.

Again, the Babinski's sign has, of late, occupied general attention. I have examined many cases of recent cerebral hemorrhage and, also, of acute and chronic myelitis. Many thousand cases are now on record where examinations have been made. My experience has shown that in recent hemiplegias there is no certainty in regard to the symptom. We are as much at a loss to know positively whether the condition will be present as we are in regard to the condition of the muscles of the paralyzed side, whether they will be flaccid or rigid, and as little able to explain the reason why in one case they are so, and in the other not. In chronic cases, whether of cerebral or spinal origin, where we have actual degeneration of the motor or lateral tracts, however, I have rarely failed to find the Babinski sign. In recent cases of cerebral hemorrhage and acute myelitis, in which Babinski's sign is found, it is due to direct irritation of the motor tract or tracts at the seat of the lesion, by which the inhibitory action of the brain is interfered with, as the Babinski symptom can only be explained by a supposable loss of cerebral control over the spinal segments.

There are, however, so many individual conditions to be considered in this question of spinal reflex activity at the time of lesion, as whether the spinal cord itself, previous to the lesion, was in a normal condition of reflex response, or whether at the time of the onset of the well-defined cerebral or spinal lesion the lower segment was not also in a slighter degree affected, thereby affecting its function, that probably this reflex condition will never be used as one of the absolutely positive signs of differential diagnosis, or as a sure indication of the character of the chief lesion.

I have long held that one of the most important symptoms, as indicative of a serious lesion of the spinal cord, is loss of control over the bladder and rectum. Overfilling of the bladder and consequent over-pressure and paralysis of the sphincter points clearly and conclusively to an absolute interruption of the sen-

sory paths to the brain from the site of the lesion. We may have, also, interruption of the motor paths, so that no motor impulse can be sent to the detrusors. While both these conditions are commonly present, the latter is not necessary to cause overflow from the bladder.

The disease from which, perhaps, one is most often called upon to make a differential diagnosis from that of acute myelitis is multiple neuritis of alcoholic origin. In New York, especially in the public hospitals, the latter is very common. Here, however, the diagnosis is most easily made, as it is in private practice that the mistakes are most common.

The cardinal points in multiple neuritis are the presence of marked pain over the paralyzed muscles and along the course of the nerves, the absence of the reflexes, the retention of control over the bladder and rectum, to which should be added the difference in sensory disturbance, as in neuritis there is never complete loss of sensation; in fact, no well-defined line of demarcation at the seat of the lesion. In extreme cases the exquisite pain on pressure over the muscles and nerves is alone sufficient to define neuritis from myelitis. Except at the point of lesion, in myelitis there is no pain, but rather the reverse, an absolute loss of sensation below the point of lesion.

It has not been my intention in this short paper to pass beyond the discussion of the etiology and symptoms of acute myelitis. I have tried to emphasize the importance of traumatism as an etiologic factor which may manifest itself early or late, and, also, to bring forth and dwell on the fact that in all these cases, whatever the origin, the symptoms are, and must necessarily be, approximately the same.

Treatment.—At the onset of the disease, especially if it has been due to exposure, a hot bath, dry or wet cupping, or counter-irritation by means of blisters or the application of cold, may be of use, but after the acute stage has passed these agents act rather unfavorably. Great care should be taken not to interfere with the nutrition of the skin by these means. Absolute rest should be enjoined, therefore, and as little disturbance of the patients by the above-mentioned measures should be allowed as possible. Ergot has been recommended at this time—1 or 2 drams of the fluid extract three times a day, or ergotin, 2 to 5 grains three times a day—and, although of doubtful effect, it may be given on general principles. Strychnin at this early stage is contra-indicated. To maintain the nutrition of the muscles after

the acute symptoms have passed away, systematic massage and electricity are beneficial. When the paralysis is extreme and evidence of a destructive lesion of the cord exists, it is doubtful whether any form of counter-irritation can stay the progress of the disease, and it is advisable not to attempt it. As the disease progresses, attention should be paid to maintenance of the general nutrition. The bladder should not be allowed to become distended, but should be periodically emptied by the catheter. In cystitis the bladder should be washed out with antiseptic solutions. The bed-sores should be kept as free as possible from contact with the urine, which often, without great care, saturates the bed-clothing. Oakum serves the purpose of absorbing the discharge. Local stimulation in the early stages may prevent the extension of the sloughing. The best application is alcohol and water; later, iodoform with Peruvian balsam makes an effectual application, and the odor is somewhat controlled. As soon as improvement manifests itself or further progress of the disease has ceased, it is advisable to have the patient put in a reclining chair, thus giving change of position and relieving pressure from certain parts, which must occur when lying in bed. At this period counter-irritation, such as the Paquelin cautery, blisters, and electricity, may be beneficial and hasten recovery. I do not believe electricity acts in any other way than to maintain the nutrition of the tissues by improving the circulation and maintaining the tonus of the muscles, by bringing the individual muscles into action. When the rigidity is very marked I have found the galvanic current preferable to the faradic, and, as a rule, much more pleasant to the patient. Electricity should not be used except for the purpose of diagnosing, so long as the inflammation is progressive—usually, therefore, not until the third or fourth week of the disease. Massage is very beneficial at this period also, both in its general and local effects on the paralyzed muscles. It is wise to combine with this, if possible, treatment at some of the hot springs. Cases of long-standing contracture may be benefited by this treatment, and greater freedom of motion attained, thus leading the patient to make greater effort on his own part to carry out some regular, though perhaps limited, course of exercises. All over-fatigue should be carefully avoided. Removal to a warm climate is also of advantage, as cold is apt to increase the rigidity. Even months after the onset of the disease I have seen marked improvement take place. While, of course, we recognize that the extent of recov-

ery depends largely upon the degree of inflammatory destruction of the cord, nevertheless I have observed that in all cases which have been subjected to more or less manipulation and exercise, the improvement has been decidedly greater than among those in which little effort has been made at systematized movement of the limbs, conjoined with massage and hydrotherapy. The general nutrition, as has been remarked, should be carefully maintained in the early stage of the disease. The bowels should be moved from time to time by enemata, as, owing to the paralysis of the sphincters, although the ordinary laxatives, such as aloin and cascara, are beneficial, there is a tendency to incomplete evacuation of the lower bowel.

In syphilitic cases I have used mercurial inunctions and iodide of potassium in large doses. When there is much restlessness and evidence of irritation of the posterior nerve-roots, with spasmodic twitchings of the limbs and pain radiating into the extremities, I find that 20 grains of bromide of potassium and 10 grains of antipyrin give relief. Half a grain of codein, combined with 5 grains of quinin, will control the temperature and produce a sense of rest and quiet.

DISCUSSION.

Dr. A. C. Brush, in opening the discussion, said he had listened to the reading with great interest, and that he could add nothing to what the reader had said on the subject, but could confirm his statements by his own experience, though following a traumatism often primarily the question is whether we have a hemorrhage or inflammation to deal with. Outside of traumatic cases we have those due to exposure, but exposures do not always cause myelitis, and when they do the explanation is difficult, puerperal fever in women and the rest of the cases are probably due to infection. He had examined a number of patients for the Babinski reflex; sometimes he found it, sometimes not, so his opinion as to its value is vague. He expressed his thanks to the reader for the pleasure of hearing the paper read.

Dr. Winfield said he had had complete cure in syphilitic cases.

Dr. Fuhs reported a case of lumbar myelitis due to malaria, which improved under the use of quinin, up to 60 grs. a day, and when the quinin was refused, the symptoms returned, and with its return improvement recurred, noticeably under the large doses of quinin, and after some weeks of treatment, made a fair recovery.

Dr. Fisher, in closing the discussion, said that we think we see a great many cases, but in a large hospital he has found it difficult to get an acute case to lecture upon. Any case of primary myelitis is rare, very rare; chronic cases, with paraplegia, and no acute symptoms, due to arterial deficiency, not so uncommon, but acute cases very rare. Cases recorded in the literature usually trace back to some injury several years previous, but it does not always then follow exposure, which we think is the cause of the myelitis, but we have cases of great exposure and not myelitis; therefore, I conclude that the exposure has nothing to do with the myelitis, which is always due to a microbe of some character.

As to confounding it with alcoholic multiple neuritis cases, the physical symptoms do not count, as the local symptoms of a nervous character sufficiently differentiate it.

PROCEEDINGS OF SOCIETIES.

BROOKLYN GYNECOLOGICAL SOCIETY.

Stated Meeting, March 22, 1900.

(Continued from p. 88)

OFFICE GYNECOLOGICAL TREATMENT BY THE GENERAL PRACTITIONER.

RALPH H. POMEROY, M.D.

What is the reasonable and proper field for the general practitioner in the office treatment of gynecological patients?

In considering this question let us first frankly acknowledge that the specialist in this line of work cannot expect the exclusive management of all the disorders of the female genital tract. He must occupy a position somewhat similar to that of the consultant in general medicine, with a meed of skill in special surgical procedures which leads in certain instances to the entire transfer of the given case to his care. But we should remember that the general practitioner is the "family doctor." His first introduction to a family is probably as attendant in child-birth. Thereafter he is the custodian of the sex history of that wife and mother, and to him all the women of that household first turn for relief, for instruction, and for local investigation and

treatment of pelvic disease. It goes without saying that the choice of the public mind in this matter would place and keep every gynecological case in the hands of the family physician. For the disorders of sight and hearing and for obviously needed surgical interference people turn with assurance directly to the specialist, but the family doctor still holds first place in the common thought as obstetrician and gynecologist. From the point of view of the practitioner himself we must recognize the same inclination against gynecology as an exclusive specialty. The young physician uses the confinement case (at ridiculously inadequate rates of compensation) as the entering wedge which shall raise him to fortune. The clinch of the nail that holds him in his hard-won place—is it not the mysterious tampon so deftly inserted at his busy office-hours?

Speaking more seriously, it would seem the part of wisdom to accept it as a fact that non-operative gynecology will remain in large degree within the field of labor of the general practitioners. From their ranks have arisen the true specialist in gynecology, schooled by observation in the whole sex life of woman, skilled in the diagnostic touch of bimanual examination, and trained to the nice requirements of abdominal and plastic operative work. The gynecologist will be the instructor, counsellor, and helper of his *confrère*, the family doctor, but he will never discredit his own origin by claiming exclusive jurisdiction in the field of obstetrics and gynecology.

It would appear that a proper field for the general practitioner in office treatment of diseases of women lies in the common class of cases associated with subinvolution of the pelvic organs consequent upon abortion or parturition. A brief summary of the conditions to be dealt with might be as follows:

1. Catarrhal endometritis of cervix or corpus uncomplicated by disease of the adnexa.
2. Erosion of the cervix, with or without follicular disease, resulting from irritant secretions of the endometritis, or from incomplete cicatrization of cervical lacerations (not every laceration of the cervix calls for trachelorrhaphy).
3. Passive congestion of the uterus and adnexa from structural relaxation.
4. Retroversion of varying degree from subinvolution of the natural supporting structure, without peritonitic adhesions.

In these conditions the intelligent use of certain simple

measure under aseptic management will accomplish much for the patient's welfare.

1. Intra-uterine applications of iodine or carbolic acid and iodine (1 to 2) will check and perhaps permanently cure the endometritis and associated leucorrhea.

2. Puncture of cysts of the cervix and blood-letting by Buttle's spear followed by depletent boroglyceride tamponade will diminish the local congestions.

3. Applications of mild nitrate of silver solution, of pyro-ligneous acid or of ichthyol will promote cicatrization of eroded surfaces.

4. Skilful tamponade with resilient material, in Sims's position, will support the sluggish circulation and conduce to involution.

5. A movable retroverted uterus, replaceable by manual effort alone, and persisting in relapse without tamponade, can usually be retained in normal position by an Albert Smith pessary—if the pelvic floor is sound.

We must premise a conscientious desire on the part of the practitioner not to expose his patient to risk of injury from ill-advised local treatment—not necessarily unskilfully applied, but perhaps inherently misdirected owing to incomplete diagnosis and consequent underestimate of the possible dangers of the line of treatment proposed. We must bespeak therefore a willingness on his part to keep his treatment within the bounds of his assured skill in diagnosis, and must commend to his attention the fact that experience in bimanual palpation of the uterus and adnexa is a *sine qua non* in estimating the safety as well as the probable efficiency of his work in a region subject to such a range of physiological and pathological variation. Until he can detect a two months' pregnancy or a retroverted uterus without employing a sound his sphere of usefulness to the patient will not include intrauterine medication or the fitting of a pessary.

Even more positively should we decry his use of such resources of electricity and pelvic massage in default of a reliable diagnostic touch. Both of these lines of treatment should remain in the hands of the expert.

As a final admonition we should emphasize the vital necessity of his using only aseptic implements for office work—to the extreme of sterilizing the same before using for each patient treated.

A FEW NOTES AS TO NECESSARY INSTRUMENTS IN A GYNECOLOGICAL OFFICE OUTFIT, AND SUGGESTIONS REGARDING OFFICE EQUIPMENT.

BY CLARENCE REGINALD HYDE, A.M., M.D.

Ever since Sims and Emmet brought to the notice of the profession the necessity of recognizing the importance of local treatment in gynecology as a specialty, and first introduced special instruments to facilitate diagnosis, and also the exposure and illumination of the affected parts during treatments; many working in this particular field have been deluging the market with either new instruments, or have submitted modifications of the standard types now in use. Thus we have catalogued an array of specula for instance, that gives one a wide choice, and in which the underlying principle is mainly that of the original and still popular Sims'. The many sounds, tenacula, depressors, and applicators in existence disprove in my opinion the trite aphorism, that "Necessity is the mother of Invention," for the majority are not necessary, some are entirely useless, and others exhibit flagrant degrees of modification and plagiarism.

An outfit of instruments for local office treatments is comprised in the following: A large and small bi-valve or tri-valve speculum, a set of Sims', including the virgin model, cervical whalebone and uterine metal applicators, an anterior depressor, volsellum forceps, tenaculum, a large and also a probe-pointed uterine sound, Buttle's spear, dressing forceps, dilators, scissors, assorted pessaries, catheters, and perhaps other special instruments in the use of which one requires skill.

As regards specula, the choice depends largely on the presence of a nurse. The bi-valve or tri-valve speculum used with the patient on the back, is useless, if satisfactory treatments are desired, and their employment during the placing of tampons, evidences a decided inattention to physical and anatomical principles. If a nurse is present, a Sims' speculum should be used, after having carefully considered the size to be employed. If a nurse is not present, the various self-retaining specula, such as the Hanks-Ehrich or the Cleveland, answer perfectly, and it is remarkable with what comparative ease one can "treat." The Hanks' is so modified that different sized blades may be substituted, in order to accommodate the caliber of different vaginæ. The utility of the bi-valve obtains in exposing the portion to note its condition, and

to demonstrate the presence of an erosion, Nabothian cysts, or the extent of a laceration; but Sims' position with a Sims' or self-retaining speculum should be elected when passing a sound, applying topical treatments, intra-uterine medication or the dressings, and puncturing cysts. A urethral speculum and urethroscope are valuable aids in diagnosis, and in allowing an excellent field of inspection for the application of medicaments to the urethral mucosa. Those who embrace in their specialty the study of lesions of the urethra, bladder, and rectum, may also supplement the foregoing list with Kelly's ureteral apparatus, an endoscope and a proctoscope, but their use necessitates particular skill, which only considerable clinical experience can give. The general practitioner could not attempt to familiarize himself with every detail, and rather should confine his attention to a few necessary and generally used instruments.

Either the Hunter or Sims' anterior depressor suffices, and the choice here would be purely personal.

Simpson's sound is most commonly employed. It is desirable to include a probe-pointed sound in case of acute flexions with partial stenosis.

The whalebone cervical applicators are intended for vaginal applications only, to thoroughly paint the vault or any fornix, and the metal intra-uterine, to introduce the medicament within the cavity. Especial care should be observed in so winding the tip of these intra-uterine applicators, that the cotton cannot be dislodged, as its presence in the uterus is a source of marked discomfort to patient and extreme annoyance to the physician.

Of volsellum forceps, Skene's is the most desirable, although the Hanks' modification so constructs the grasping points as to lessen the liability of their cutting or tearing out of the cervix. A single tenaculum, will be found indispensable for bringing the cervix into perfect view, to steady the uterus when counter-pressure is desired during the puncturing and emptying of cervical cysts, or excising small portions in suspected cases.

Buttle's spear is a neat little instrument and one that is too rarely used. As an instrument to empty Nabothian cysts, it has not its equal.

Bozeman's dressing forceps is probably the most practical of its kind.

Personal experience with Peaslee's or Hanks' dilators convinces me that their use is unwise, except under strict antiseptic precautions, and preferably with an anesthetic, and while

many may have experienced no untoward symptoms from neglect of these measures, yet it is possible to produce an infection.

A long handled scissors to remove retained sutures, or to clip off any suspicious cervical or vaginal tissue is serviceable.

Assorted pessaries are a *sine qua non* in the hands of those capable of putting them to proper and practical use; the Smith-Hodge for retroversions, and a few large, round hard rubber rings for women with prolapsus uteri who refuse operation.

An important adjunct is a sterilizer. No gynecologist should regard his equipment as complete without such an apparatus. Too much cannot be said regarding the importance of thorough cleanliness and sterilization of instruments after treatments. There is ever a grave possibility that the germs of syphilis, gonorrhea, cancer or pus may be transmitted to an uninfected genital tract by instruments not boiled after prior contact with the infectious or contagious material. The sterilizer may be operated either by alcohol lamp, Bunsen burner, or the electric coil.

An electric headlight for use on cloudy days is of assistance, as at such times it is difficult to satisfactorily illuminate the vagina and cervix. If one's office is furnished with the "street current," electric hand lamps are serviceable, especially for bladder and rectal inspection. I have often wondered why gynecologists do not take pattern after the throat specialist, who with his head mirror furnishes us an excellent opportunity to develop a suitable method of illumination which should prove feasible.

The female glass catheter, kept always sterile, is employed in emptying a full bladder, which interferes with a perfect and satisfactory bimanual examination, or to obtain quickly a specimen of the patient's urine for inspection or analysis.

A few remarks on necessary office furniture, dressings and medicaments are not out of place.

A good examining table with a Sims' slide is an absolute necessity. Also a stool or small bench at its foot to assist the patient to the table, and a chair of proper height for the operator. A suitable washstand with hot and cold water faucets, and a dressing table for the instruments, dressings and medicaments are also requisite. Many take pride in the furnishings of their private offices, equipped with small instrument cases of hospital pattern, modern lavatory arrangements, abundant linen, electric apparatus, special wall cases for miscellaneous supplies and

other appointments which indicate a refinement of ideas in such matters. One may go to almost any extent in his outlay.

Standing to the right, preferably, of the examining table may be the stand for dressings, medicaments and instruments. The so-called Presbyterian Hospital dressing stand or any other conventional pattern can be selected. On top may be arranged in order one's instruments, and the wide mouth ground glass stoppered bottles for the different medicaments. On the shelf below these can be placed three large "section jars" (Whitehall and Tatem), one for dry tampons, one for medicated tampons, and the other for cotton balls for swabbing purposes. There also may be kept freshly prepared a basin of bichloride solution of lysol or creolin, according to one's option, and the catheters in an antiseptic solution. Tampons should be prepared from lamb's wool (expensive), or cotton batting of good quality, with threads attached to facilitate removal by the patient. An elastic, non-absorbent medium is the desideratum, and tampons should not be too large nor too lightly rolled. Many distended and dilated vaginae are sequels of improper tamponing, and testify that some one's energy has been misapplied, or that there has been a failure to grasp the principle of correct tamponing.

The personal equation enters very largely into the choice of medicaments, both for tampons and topical applications. One uses boro-glyceride or plain glycerine tampons where another employs ichthyol or glycerite of tannin. Useful medicaments are ichthyol (10 per cent. in glycerine), 10 per cent. glycerite of tannin, pure tincture iodine or the Churchill preparation, lactic acid, argentum nitrate in varying strengths (from ten grains to forty grains to the ounce), acid carbolic (C. P.), pinus canadensis, and pyroligneous acid. The latter is seldom used, but is excellent for topical applications to eroded cervixes.

It is well to always have on hand some antiseptic solution as bichloride of mercury, lysol, creolin or formalin, as prior to the passage of a sterile sound, the vagina, cervix and particularly the external os should be vigorously swabbed with a good disinfectant. This same holds true in passing a sterile catheter, that care should be exercised to thoroughly disinfect the meatus, as a prophylactic in preventing a cystitis. Too much stress cannot be laid on the absolute and imperative need of such precautionary measures.

In the treatment of gonorrheal cases, one's armamentarium

may be increased by the acquisition of a Hanks' douche pan, and a complete irrigator with suitable douche tips.

This paper should not be construed as an attempt to dictate an arbitrary list of instruments, apparatus or office furnishings. Personal experience in working in the Woman's Hospital and other good clinics convinces me that any one engaging in this special work should be fully equipped to "treat any case" or meet any emergency, and that no successful or altogether scientific treatment can be carried out continuously except under the most favorable conditions of preparedness. To obtain tangible results, local office treatment cannot be perfunctorily performed in connection with nose and throat, eye and ear, and the many other accomplishments of some general practitioners. I candidly confess I cannot look at this subject from the standpoint of the general practitioner, not from any obstinacy on my part nor lack of ability on the other side, but because I am firmly convinced that local treatment consists of more than simply painting the vaginal vault, inserting tampons in any position or in any manner, or using any pessary that comes handy. I make these statements advisedly, fully conscious that others voice my sentiments.

BIMANUAL AND SPECULUM EXAMINATIONS.

BY L. GRANT BALDWIN, M.D.

Mr. President, the matter of speculum examinations has been pretty well covered, so I shall limit myself by exhibiting what I consider a perfect set of specula and show the different numbers of the so-called Woman's Hospital set of the Sims' pattern, which are the only ones I use in my office, except occasionally the Bozeman. One thing about these instruments, in preference to those made of heavier or stiffer metal, is that we frequently want to change the angle of them, and whereas these are stiff enough to keep their direction, yet they can be changed at will, which is quite an advantage.

As to the bimanual examination. Of course the first thing that may be spoken of is the *advantage* of the bimanual examination. It is unnecessary to say that without it an investigation of the pelvic organs is not complete, for of course the only absolute knowledge that can be obtained with one hand is the condition of the external parts and of the vagina and cervix. One thing in regard to position. A fault is often made, I think, in

having the legs too far flexed; having them well brought up on the abdomen, I think, is a mistake. The feet should rest on the table on which the patient is lying, any apparatus extending from the table is objectionable, for if the thighs are well brought up on the abdomen they are in the way of the free movement of the examining hand over the abdomen. The clothing should be entirely loosened, all bands, corsets and everything else, the bowels and *bladder must* be empty. The condition of the rectum is always dwelt upon, but I think we are apt to overlook a full bladder, and it is not always easy to recognize it.

The next thing is the choice of the hand to be used in making a vaginal examination. The question has often been asked why do gynecologists so universally use the left hand for vaginal examinations. That I have never had explained or answered to me, but I fancy it is largely this: when a man begins to make vaginal examinations neither finger nor either hand knows very much about what it comes in contact with in the vagina, whereas the right hand with most of us is partially educated in feeling things we are accustomed to feel and that the eyesight can help out; therefore in the beginning if you have got to educate one hand why not educate the left and so to a great extent become ambidextrous?

Another question is as to the number of fingers to use in making bimanual examinations. Personally I prefer one, and believe that I can determine more from the use of one finger than I can with two. It is true that in some instances with the second finger or with the whole hand you can reach further. I am sometimes confused whether I feel two things or one when using two fingers, whereas with one finger it is always plain and I know what I am feeling.

As to the position of the hand. In all of the text books I have been able to consult, the pictures of the examining hand are shown with the examining finger or fingers extended, the thumb extended and held vertical, striking the clitoris and urethra, the remaining fingers half flexed towards the palm of the hand, or bent down against the perineum and over the anus. I can absolutely make no progress in examining by that method, because the extent of the examination is limited by the symphysis and coccyx. I believe the proper method is to fold the fingers on the hand and get the thumb well out of the way, then the perineum can be pressed back and so gain a considerable distance. With a little practice the radial side of the finger can feel just as well as

the palmar side, and one or the other surface may be made to touch all parts to be examined by twisting the hand from side to side, the perineum being well pressed back.

One great advantage in making vaginal examinations, which I have noticed is not often made use of, is that after the perineum is pressed back instead of forcing the finger in, the wrist is bent so the finger may be pushed up behind the uterus.

In palpating the uterus, after the preliminary examination of the vagina has been made, instructions are sometimes given to make a sudden pressure or a sudden tap on the fundus of the uterus with the opposing hand on the abdomen. I have not obtained as good results by that method as by the gradual pressure, believing that in all instances the bimanual examination is best made with the least possible pressure or pain to the patient, because immediately any pain or sudden motion is made the recti muscles are contracted and so we are barred from all information. I believe the best results will be obtained by gradual pressure both on the abdomen and in the vagina instructing the patient to draw long breaths to allow her abdominal muscles to relax and directing her attention to something else if possible. In regard to palpating the ovaries and tubes, it has been stated by a good many that any one with any skill at all should be always able to palpate the normal ovaries. I am frank to say that with the best endeavors I have been able to make I have often failed to palpate the normal ovary, and contrary to the usual rule of the books I find it much easier to palpate the tubes than the ovaries, because the tubes are more easily located. If the uterus can be caught between the two hands, it is easy to slide them from one side to another and palpate the tube.

The recto-abdominal examination has not given me as much satisfaction as it has most men. The main conditions which I have been able to make out to better advantage than by the vagina have been posterior displacements of the uterus and new growths or inflammatory conditions low down in the pelvis. Bimanual examination is also aided in some cases by displacing the uterus, pulling it down or pushing it up backwards or forwards, but I think this should be done with considerable care and never done until a pretty careful examination has been made of the uterus in its existing position.

HISTORICAL DEPARTMENT.

JULIUS CHARLES RAPPOLD, M.D.

By the death of Dr. Julius Charles Rappold, which occurred on August 3d of the present year, this community lost one of its best citizens, and the medical profession a noble member.

In hundreds of households and among many of our medical brethren, the news of his demise brought sorrow and sadness. There was only one voice as to the severity of the loss which occurred through the passing away of this noble physician, who had possessed so many high qualities, and whose life we all had hoped might have been spared for many a year.

He was 63 years old and had been a resident of the Eastern District for forty-seven years. His birthplace was in Murchart, Wurttemberg. At the age of 17 he came to Brooklyn with his father, who was a physician. The latter soon became well known and respected. The son became an ardent student of medicine. He graduated from the New York University Medical College in 1861, and began the practice of medicine in this city. Soon his professional services were required at the front. He entered the army as Assistant Surgeon of the Twenty-eighth New York National Guard. After serving for three months in this capacity he was honorably discharged. He re-enlisted in the Fifty-second New York Volunteers and received his commission as Surgeon. He served during the Peninsular campaign and was severely injured. Still he continued to perform the duties of his office for three months, there being no one to relieve him during that time. He retired from military service after three years of arduous work at the front.

He resumed the practice of medicine in this city, and soon became known as a practical and skilful surgeon. His services were sought by the public, while the medical practitioners recognized his superior surgical skill and his valuable experience, gathered during his term of service in the army.

His opinion was sought in consultations, especially in surgical cases, and he was frequently called to perform the more serious surgical operations.

He was always ready to give from his rich fund of experience, and one was pleased to accept his advice, as it was given



JULIUS CHAS. RAPPOLD, M.D.



SAMUEL L. MITCHELL, M.D., LL.D.

in a modest and simple way, though he came directly to the point and expressed his views in a few words.

Modesty and reticence, readiness and precision, and rapidity of perception and action, were his chief characteristics.

His penetrating eye revealed the keen observer; his well-shaped head denoted the student and thinker; and his face left no doubt as to his determination and firmness.

In his presence one felt instinctively his force of character, and he who once heard his voice never doubted his sincerity and kindness.

He loved his profession, and followed the rapid strides of progress of the science and art of surgery.

He was as true to his profession as he was to his friends, and he will ever be regarded by all who knew him as an example of a true man, a noble physician, and a patriot.

J. FUHS, M.D.

SAMUEL LATHAM MITCHELL, M.D., LL.D.

Born in North Hempstead, Long Island, August 20, 1764, and died in New York City, September 7, 1831.

His early education was acquired under the instructions of his uncle, Samuel Latham, M.D., together with the elementary principles of medicine; in 1780 he became the pupil of Samuel Bard, M.D., LL.D., of New York City, and graduated M.D. from the University of Edinburgh in 1786.

On his return to New York he studied law under Robert Yates. In 1788 he was appointed one of the commissioners to treat with the Iroquois Indians.

In 1790 and again in 1797 he was elected to the New York Legislature. Elected to Congress in 1801, served until November, 1804, when he was appointed to the United States Senate from New York to serve until March, 1809, after which he again served in Congress until March, 1813. In 1807 he was a passenger on the first passage made in the "Clermont" by Robert Fulton.

He was Professor of Natural History, Chemistry and Agriculture in Columbia College, 1792-1801; Vice-President of the College of Physicians and Surgeons, 1807-11; Professor of Chemistry, 1807-08; Professor of Natural History and Botany, 1808-20, and Professor of Botany and Materia Medica, 1820-26. At the organization of Rutgers Medical College in New York City in

1826, he held the office of Vice-President of the College; President of the New York County Society in 1807, New York State Medical Society, 1822-23; Surgeon-General of the Militia under Governor DeWitt Clinton, President of the Lyceum of Natural History, New York City; Physician to the New York Hospital, 1796-1817. He received the degree of A.M. from Columbia in 1788 and LL.D. from the University of Pennsylvania in 1819. Dr. Mitchell was assigned to an eminent rank among the cultivators of natural science, a large contributor to the literature of the day and was called the "Nestor of American Science."

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

Dr. Calvin F. Barber was elected president of the Polytechnic Club, at the annual meeting in January. Dr. Barber is president also of the Long Island Alumni of the College of Physicians and Surgeons.

At the meeting, January 17th, of the Section on Laryngology, Rhinology, and Otology, Charles N. Cox was elected chairman; Wm. C. Braislin, secretary and treasurer; John E. Sheppard, Wm. F. Dudley, and Henry A. Alderton, to serve on the Executive Committee with the officers.

Dr. Wm. S. Hubbard has been in charge of the orthopedic clinic at the Polhemus Dispensary since the death of Dr. Wm. W. Browning.

Dr. Henry E. Bell has taken the place of the late Dr. Winder as visiting physician to the Howard Orphan Asylum.

Dr. L. S. Pilcher returned the latter part of February from a month's trip to Cuba.

Dr. Sewell Matheson arrived home on February 11th from his extended European journey.

Dr. P. C. Jameson has taken an office with Dr. Arthur Mathewson at 139 Montague street.

Announcement is made that the partnership of Dr. George Armon Clark and Dr. Wesley Sherman has been dissolved, and Dr. Clark has moved to 348A Ninth street.

Dr. Wm. H. Snyder has resumed practice and established his office at 48 Livingston street.

Dr. George W. Beatty has removed from Stuyvesant avenue, taking Dr. Winder's office at 473 Franklin avenue.

The marriage is just announced of Dr. Charles H. Tag to Mrs. Laura May Williamson, which took place April 28, 1900.

Physicians who knew them were saddened to hear of the deaths of one of the oldest and one of the youngest members of the profession. Dr. Guthrie R. Winder (L. I. C. H., '98), of Franklin avenue, died January 25th, in the twenty-seventh year of his age. Dr. Stephen C. Griggs, who practised in Brooklyn over forty years, and retired but a few years ago, died at the home of his daughter in New Jersey, having fallen in some way into an open fire. He was 82 years of age.

The examinations for internes at the Methodist Episcopal Hospital will be held the last Saturday in March.

The surgeons of the four Brooklyn regiments have issued a challenge to the inspectors of small arms practice of their regiments to a revolver match, each team to be composed of one member of their department from each organization. The medical department will be represented by Drs. F. J. J. Wood, of the Forty-seventh; J. L. Macumber, of the Fourteenth; H. P. de Forest of the Thirteenth, and C. D. Napier, of the Twenty-third. With the exception of Dr. Wood, all have shot for several years with the rifle teams of their regiments. Judging from the records of those who will take part, the match promises to be very closely contested.

The annual meeting and dinner of the Associated Physicians of Long Island, of which brief mention was made in last month's news column, were the most successful and enjoyable that have been held. About seventy Brooklyn members and twenty-five

Long Island members sat down to dinner at the Oxford Club. Music during the dinner and an excellent vaudeville afterwards furnished delightful entertainment. The officers elected for the ensuing year are: President, Wm. B. Gibson, Huntington; first vice-president, Calvin F. Barber; second vice-president, James S. Cooley, Glen Cove; third vice-president, Wm. H. Ross, Brentwood; secretary, James C. Hancock; treasurer, John P. Heyden, Northport.

About thirty-five members and guests of the Long Island Medical Society were present at the annual dinner at the Montauk Club, February 5th. The dinner, music, and vaudeville were all enjoyable, and the occasion delightfully informal. Dr. Luzerne Coville, of Utica, who formerly practised in Brooklyn, an honorary member of the Society, took the trip down in order to attend.

An unusually large number of members of the Kings County Hospital Alumni Association and of the visiting staff of the hospital rewarded by their attendance the efforts of the committee, who had provided a good menu for the annual dinner on February 6th, at the Clarendon. The delightful music of the Metropolitan quartette and a few interesting and witty speeches added much to the pleasure of the evening. Dr. M. T. Lewis was elected president; B. D. Harrington, vice-president; Mark Manley, secretary and treasurer; L. J. Morton, historian.

Three Brooklyn members read papers at the meeting of the Medical Society of the State of New York at Albany: Dr. George McNaughton, subject, "Ectopic Pregnancy, Primary Rupture, the Opportune Time for Making Diagnosis"; Dr. George R. Fowler, "The Indications for, and Limitations of, Spinal Cocainization in Surgery;" and Dr. James P. Warbasse, "The Treatment of Delirium Tremens by the Intravenous Infusion of Saline Solution." The Brooklyn delegation consisted of about thirty men. Dr. L. N. Lanchart, of Hempstead, an ex-president of the Associated Physicians of Long Island, was chosen vice-president.

The Brooklyn Eastern District Hospital and St. John's Hospital both celebrated last month the fiftieth anniversary of their founding, the former with a reception at the Pouch Gallery, the latter by appropriate services in the chapel of the hospital.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

THE NEW YORK STATE JOURNAL OF MEDICINE. We have received the initial number of *The New York State Journal of Medicine*, published monthly by the New York State Medical Association, in place of the annual volume of *Transactions*.

Dr. J. H. Burtenshaw, of New York City, is chairman of the publication committee. The first number presents a creditable appearance and contains four original articles, in addition to reports of the proceedings of the State and various County Medical Associations. Following the example of Pennsylvania and Illinois, the New York State Medical Association is the third State society to adopt the publication of a monthly journal in place of an annual volume of *Transactions*. We extend our best wishes for the success of the undertaking.

A POCKET TEXT-BOOK OF DISEASES OF THE EYE, EAR, NOSE AND THROAT, FOR STUDENTS AND PRACTITIONERS. By William L. Ballinger, M.D., Assistant Professor of Otology, Rhinology and Laryngology in the College of Physicians and Surgeons, Chicago, etc., and A. G. Wipperrn, M.D., Professor of Ophthalmology and Otology in the Chicago Eye, Ear, Nose and Throat College. In one handsome 12mo volume of 525 pages, with 150 engravings and six full-page colored plates. Cloth, \$2.00 net; flexible red leather, \$2.50 net. Lea Brothers & Co., publishers, Philadelphia and New York.

Within the past two years the literature upon diseases of the eye, ear, and upper respiratory tract, has been augmented by several carefully written treatises, especially adapted to the student and to the practitioner of moderate experience. They were welcome and were needed by students, who formerly had to refer to large and exhaustive works, or else to the unsatisfactory "Question compends," neither suitable for their requirements.

The information contained in this publication is, of necessity, greatly condensed. To cover these four subjects in a pocket text-book makes it imperative that many articles shall be extremely brief, and that the facts shall be sketched in outline, with the omission of much interesting detail. Yet the pruning has been skilfully accomplished, and the essential points, which every student must master, are given clearly and succinctly. In commending it, we must regard it as a book for the student and beginner—

not as a reference book to guide in the treatment of patients; for such purposes it is over-brief and insufficient.

The illustrations are numerous and are moderately well drawn; but, from the artistic standpoint, they are not up to the standard of other recent publications. The cloth binding is of a brilliant scarlet color, decorated with gold lettering; this may serve to catch the eye, but, to our mind, it suggests a work of fiction or a volume of poems, rather than a working text-book, whose library companions must be enclosed in staid and modest-hued cloth, or in classic sheepskin.

A COMPEND OF DISEASES OF THE SKIN. By Jay F. Schamberg, A.B., M.D., Professor of Diseases of the Skin, Philadelphia Polyclinic and College for Graduates in Medicine; Fellow of the College of Physicians of Philadelphia. Second Edition, Revised and Enlarged. With 105 Illustrations. Philadelphia, P. Blakiston's Son & Co., 1900. XV., 9-291 pp. 12mo. Price, cloth, 80 cents. Quiz Compend, No. 16.

This little volume has the merits and defects of others of its class; it no doubt serves its purpose, perhaps all that is intended by the author, as a "vade mecum" at Lectures on Dermatology, and clinics.

It is plentifully illustrated, perhaps too much so, at the cost of space for text; the illustrations are not of great excellence (with certain brilliant exceptions), but, after all, convey indications of certain regional proclivities of respective skin diseases, which are somewhat instructive to the student. The print is clear, the language and arrangement direct.

S. SHERWELL.

DISINFECTION AND DISINFECTANTS. By H. M. Bracken, M.D., Professor of Materia Medica and Therapeutics, University of Minnesota, etc. The Trade Periodical Company, Chicago, Ill. pp. 85.

This little book treats in an excellent and concise way of the best-known disinfectants, and their use in the disinfecting of disease germs, with special instructions for their application in the commonly recognized infectious and contagious diseases. It is a book which we can heartily recommend.

RUDIMENTS OF MEDICAL ELECTRICITY. Arranged in the Form of Questions and Answers, Prepared Especially for Students of Medicine. By S. H. Monell, M.D. New York: E. R. Pelton, 1900. 165 pp. 12mo. Cloth, \$1.00 net.

The student, whether in college or in general practice, who wishes to inform himself on the subject of medical electricity, will find in this little volume just what he is seeking—a short, concise compend of its history, forms of mechanism, types of batteries, appliances, and proper selections of these for producing certain physiological effects. The first 122 pages are all one would desire in this respect. The remaining forty-three pages, comprising the chapter on Electro-Therapeutics, fall far short

of what one is led to expect from the promises foreshadowed in the foregoing, and, in the reviewer's judgment, the author would have done just as well to have replaced them with "For instruction in Electro-Therapy see the author's complete work on 'Treatment of Disease by the Electric Current.'"

FREDERIC J. SHOOP.

PATHOLOGY AND MORBID ANATOMY. By T. Henry Green, M.D., F.R.C.P., etc. Ninth American, from Ninth English Edition, 1900. Revised and enlarged by H. Montague Murray, M.D. Revised for America by Walter Martin, M.D. Lea Brothers and Co., Philadelphia and New York.

The ninth edition of Green's Pathology presents this favorite text-book in a new form, nearly one-half the subject-matter having been rewritten. New chapters have been added on Malaria and the Blood, and on the preparation and staining of tissues for microscopic study. One hundred and eighty new illustrations have been added, also some colored plates. The new chapter on Malaria is very well written and instructive, especially that portion which is devoted to the destruction of the life of the parasite outside the body. The new chapter on Pathological Technique is very short, but the working methods are well selected and described. Altogether, the book is thoroughly up-to-date, and is a standard work in every respect.

E. H. WILSON.

AN AMERICAN TEXT-BOOK OF PHYSIOLOGY. By Henry P. Bowditch, M.D.; John G. Curtis, M.D.; Henry H. Donaldson, Ph.D.; W. H. Howell, Ph.D., M.D.; Frederick S. Lee, Ph.D.; Warren P. Lombard, M.D.; Graham Lusk, Ph.D., F.R.S. (Edin.); W. T. Porter, M.D.; Edward T. Reichert, M.D.; Henry Sewell, Ph.D., M.D. Edited by William H. Howell, Ph.D., M.D., Professor of Physiology in the Johns Hopkins University, Baltimore, Md. Second Edition, Revised. Vol. I., Blood, Lymph, and Circulation; Secretion, Digestion, and Nutrition; Respiration and Animal Heat; Chemistry of the Body. Philadelphia, W. B. Saunders & Co., 1900. Octavo, pp. 598.

The opportunity offered by the issue of a second edition of this work, for a rearrangement of its sections, has been taken advantage of. In this volume are considered those processes primarily concerned with body-nutrition. Though the content of each section is essentially the same as that of the corresponding sections of the first edition, yet in most sections there is evidence of careful rereading, and in some of partial revision. An analytic table of contents has been inserted, and the index revised. The illustrations are the same.

The Introduction, by Wm. H. Howell, differs but little from that of the first edition. The description of Loew and Bokorny's theoretical views of the chemic structure of the proteid molecule has been slightly curtailed, and a paragraph, calling attention to our actual ignorance of the

chemistry of living matter, added. These, together with a few verbal changes, and omission of Bütschli's views of the structure of protoplasm, constitute the only alterations. The section, as it stands, is very good; though some general remarks on the methods employed in the study of physiology, their limits of error, and the apparent degree of reliability of some of the broader generalizations of physiology, would improve it.

In Section II., Blood and Lymph, by Wm. H. Howell, reference to Lilienfeld's work on the theory of coagulation of the blood has been omitted, and the discussion of Pekelharing's theory rewritten—some recent criticisms of it being mentioned. The discussion of the probable mode of action of fibrin-ferment has been somewhat extended, as has also the paragraph on intravascular clotting. Delezenne's recent work, on the anticoagulating effects of intravascular injection of solutions of proteoses and peptones, and on the relation of the liver to blood-coagulation, has been mentioned. A paragraph summarizing the factors controlling the flow of lymph has been added. Into this section has been introduced a subsection on the physical principles of diffusion and osmosis, and their application to the movements of the tissue liquids. This is a commendable addition.

Part I. of Section III. The Mechanics of the Circulation of the Blood, and of the Movement of the Lymph, by John G. Curtis, is the same, save a few verbal changes, as the corresponding portion of the first edition.

Part II. of this section, The Innervation of the Heart, by Wm. Townsend Porter, has been very carefully revised. In the discussion of the rhythmic character of the heart-beat, a statement is given of the results of Porter's own recent work on the isolated ventricle-tip of the frog's heart, which has supplied a much-needed link in the chain of evidence favoring the hypothesis that the real cause of the rhythm is to be sought in a rhythmic contraction of the heart muscle itself, and which shows that under approximately normal conditions such rhythmic contractions occur in a portion of it which certainly seems to contain no nerve-cell bodies. The suggestions of Howell and of Loeb, concerning some of the essential conditions for such rhythmic contraction, are mentioned. Concerning the probable mode of transmission of the excitation wave through the heart muscle, and the refractory period and compensatory pause of the beat, new facts have been added. A clearer explanation of the connections of the cardiac nerves is given, and some recent work on the effects of vagus excitation on the heart beat has been referred to. The two remaining parts of this section, on The Nutrition of the Heart, and The Innervation of the Blood Vessels, by the same writer, have also undergone careful revision. In the section on Secretion, by Wm. H. Howell, there are some additional facts concerning the internal secretions. The two succeeding sections, by the same writer, V., The Chemistry of Digestion and Nutrition, and VI., The Movements of the Alimentary Canal, Bladder and Ureter, remain about the same as they were in the first edition. In the sections on respiration and animal heat, there are very few and but slight changes. In the last section, on The Chemistry of the Animal Body, by Graham Lusk, the paragraphs on nucleo-proteids, and on the theoretical composition of the proteid molecule, have been rewritten, and a brief paragraph on histon added.

JOHN C. CARDWELL.

MANUAL OF THE DISEASES OF EYE. For Students and General Practitioners. With 243 original illustrations, including twelve colored figures. By Charles H. May, M.D., Chief of Clinic and Instructor in Ophthalmology, Eye Department, College of Physicians and Surgeons; Medical Department, Columbia University, New York. New York: William Wood & Co., 1900.

The author has admirably succeeded in concisely stating what is essential for the student to know. In a work of such general excellence it is somewhat difficult to select the sections which are the best. However, the chapters on "Diseases of the Lens" and "Astigmatism" are worthy of special commendation. Most of the illustrations have the merit of being original.

JAMES W. INGALLS.

ATLAS AND EPITOME OF GYNECOLOGY. By Dr. Oskar Schaeffer, Privatdocent of Obstetrics and Gynecology in the University of Heidelberg. Authorized translation from the second revised and enlarged German edition. Edited by Richard C. Norris, A.M., M.D., Surgeon-in-Chief of Preston Retreat, Philadelphia, Gynecologist to the M. E. Hospital, and the Philadelphia Hospital, etc., etc. With 207 colored drawings, ninety plates and sixty-two illustrations in the text. W. B. Saunders & Co., Publishers, Philadelphia. Price, \$3.50 net.

This unique volume of 272 pages, so profusely illustrated, is designed especially for the use of the student, and is at the same time a handy reference book for the general practitioner, enabling him to quickly familiarize himself with the pathology of the diseases of women, and to intelligently cope with immediate or urgent demands of the particular case presenting itself to him for relief.

Some of the illustrations (so the author states) are, as near as possible to make them, reproductions of water-color drawings made from the actual specimen or case as found by him on the living subject and at autopsies; the rest are diagrammatic and semi-diagrammatic, so drawn as to emphasize or exaggerate the actual condition in size and color, in order to render the condition under discussion more prominent and more easily recognized and remembered.

In several instances the author refers the reader to some statement contained in another section, instead of to such and such a page, and as these sections cover several pages and do not easily catch the eye, because of the greater prominence of other markings, it seems to the reviewer that some valuable time must of necessity be lost in hunting for the desired information. The therapeutic table, at the close of the volume, commends itself to the reader, and differs very little from our own selection of remedies. The editor has noted here and there throughout the work some points of difference between the German teaching and that generally approved in America.

One point evidently overlooked by the translator is the use of the

term "Faradization," as a synonym for "Galvanization," or "Galvanic current," on page 37.

FREDERIC J. SHOOP.

MODERN SURGERY; GENERAL AND OPERATIVE. Third edition, revised and enlarged. By John Chalmers Da Costa, M.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; Surgeon to the Philadelphia Hospital and to St. Joseph's Hospital, Philadelphia. With 493 illustrations. Philadelphia and London: W. B. Saunders & Co., 1900. 1,117 pp., 8 pl. 8vo. Price, cloth, \$5.00 net; half morocco, \$6.00 net.

This is a manual of exceedingly convenient proportions, and occupies a mid-ground between the cumbrous, though complete, text-books of two or more volumes recently in vogue, and the boiled-down compends affected by students during their college life, and which remain only too often their sole vade mecum long after engaging in practice. In fact, the present book has been evolved from the latter type, since its first edition was one of the New Aid Series issued by the publisher of the present volume. From a book of 800 pages, it has passed in three editions to one of over 1,100 pages.

The arrangement of the book is such as to commend itself to student and teacher alike, and, last but not least, to the practitioner. A book so arranged as to be useful in these respects is of especial value, for it is probably true that the student who can follow between times the lectures of his professor of surgery, by reading from a book arranged after the manner of the lectures themselves, will profit to a far greater extent, both as to his immediate needs for the purposes of final examinations, and his further usefulness as a practitioner, than he who "cuts" the lectures and depends upon "grinding" from a compend. Every didactic teacher of a practical branch in a medical college should either follow the plan of some well-arranged text-book upon the branch which he teaches, and which should be accessible to his listeners, or he should write a book upon the subject, himself, preferably the latter. The day has gone by when a medical college can be carried on successfully by professors who are even relatively unknown outside of the scattered few upon the benches, or the mutual admiration society comprised by the faculty of the college itself. The true teacher is not he who drones out from the rostrum, from thumb-worn notes, the thoughts of others, these latter perhaps long since antiquated, or renounced by their authors. He is one, rather, who is not only a teacher to the little coterie who gather around him at the morning lecture hour, but the entire medical world. The first is one in whom the spirit of commercialism prompts the securing and hold upon the title of professor, for the advertisement in practice or advantages in consultation fees which it brings, giving forth scarcely a thought derived from clinical experience, much less a single original idea to the profession at large, and profiting in an entirely personal and selfish manner from the éclat which the title involves in the public eye. The second is typified in the author of the work before us, who is a professor of the Principles of

Surgery and of Clinical Surgery in the oldest and one of the best of American medical colleges. The teacher who writes such a book cannot but possess the true spirit of teaching; his instruction not only influences those in the college auditorium, and is carried by them to hamlet and cross-roads, as well as to the busy centers of life, but the whole world is his audience, and he is a teacher in the broadest sense. The first builds for the present and for himself alone; the second builds for the future and for humanity. How many practitioners of to-day can tell off-hand the name of the institution in which Dupuytren earned his title of "The Napoleon in Surgery," or where Sir Astley Cooper, whose works on fractures and dislocations and diseases of the breast are by no means obsolete, much less forgotten, lectured? And yet, the writings of those have made them known wherever printed language is carried, and receptive intellect exists. Perhaps diminutive in figure and weak in voice they appear to those about them, but the ripples of thought set in motion by the stroke of their pen have been flowing on for more than a century and a half. Where did Lister address the students upon the modern forms? Where does König teach, and what city claims Kocher for her son? And yet these names are upon every professional tongue—names to conjure with.

The shortcomings of Da Costa's Surgery are few, and its strong points are many. The reader will seldom fail to find what he seeks; the instances are rare in which subjects fail of notice at sufficient length for the purposes of the student as well as of the every-day practitioner—still less so where it has not made good its claim to the title of "Modern Surgery."

G. R. FOWLER.

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- ENGMAN (M. F.) Impetigo contagiosa bullosa; its relation to pemphigus neonatorum, with the bacteriology of eight cases. 20 pp. 8vo.
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THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

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VOL. XV. No. 4.
WHOLE No. 160.

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BROOKLYN, N. Y., APRIL, 1901.

} Single copies 25 cents
} \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

PEDIATRIC MALARIA.

BY WILLIAM A. NORTHIDGE, M.D.

Read before the Brooklyn Pediatric Society, September 14, 1900.

The plasmodium malarie, when it attacks the young child, is apt to cause symptoms at variance with those seen when the adult is attacked. At times these symptoms are so obscure that accurate, immediate diagnosis is difficult and often, with our present knowledge, impossible. Malaria is so different in its manifestations in children under the age of five years, that if one were to depend on the recognition of the ordinary symptoms of malaria as found in the adult, the existence of the disease in certain cases would often remain undiscovered.

While the hematozoön does not spare any organ or tissue of the body, in the child the nervous system is by far most often and most profoundly affected. This is probably due to the susceptibility to disease of this system in the young.

Diagnosis.—If fever occurs in a child, we must suspect the plasmodium malarie, and take it into account in making our diagnosis. If the patient's fever is periodical, and if the spleen

can be found enlarged, the diagnosis is rendered easy. Again, if a disease of the nervous system or of the muscular system, or of the hematopoietic system, or of the lungs, or of the digestive system, or of any organ whatsoever, shows periodicity, then we must suspect that the hematozoön is at the bottom of the trouble, and look for other symptoms manifesting its presence. These will generally be found, and many cases which before were hard to diagnose and obscure, will be rendered plain and easy. The four most important symptoms of malaria in the child are fever, periodicity, anæmia, and enlarged spleen. The first three of these symptoms are always present, and are generally easily recognized. The fourth, enlarged spleen, is, I believe, also a constant symptom, but the enlargement cannot always be made out. The absence of this symptom must not be taken as precluding the diagnosis of malaria. Often in acute cases, the spleen is not discovered because it diminishes rapidly in size, after the paroxysm is over. Such cases must be examined during the second stage of fever, when often the enlargement can be made out. In chronic cases the enlargement is more permanent, and can easily be made out; often by inspection alone, and always upon physical examination. The progress of the case can frequently be noted by examining the diminishing ague cake from time to time.

The following chart shows some of the differences between malaria in the adult and in the infant:

Adult Type.

The tertian is the common type.

Three distinct stages: cold, hot, sweating.

The cold stage is well marked. Generally a chill is observed.

Infantile Type.

The quotidian is the common type.

One distinct stage; the hot stage of fever.

Often this stage is so slight as not to be remarked. The chill is generally absent, sometimes occurs. Convulsions and involuntary muscular contractions are seen at times. Most commonly, a pale, blue-lipped, pinched face is seen, with shrunken eyes. Or the child is drowsy, tired, listless, and yawns. Nausea and vomiting

Nausea and vomiting not uncommon. are common, occurring in about two-thirds of all cases.

Hot stage. Fever is always present. Fever is always present, and is often the only distinct symptom observed, and on its periodical recurrence, often depends the diagnosis. The temperature ranges very high, 104° F. to 108° F.

Stage of sweating marked. Sweating stage often absent, or very slight and not noticed.

Periodicity marked. Periodicity marked.

Anemia. Anemia marked.

Spleen enlarged. Spleen enlarged.

Nervous system not greatly affected. Nervous system often profoundly affected.

Jaundice occasionally. Jaundice occasionally.

The disease does not often present variations from its usual form. The disease often presents peculiar manifestations.

Types.—The quotidian is by far the most common type of this disease as found in the young child. Of the 576 cases on which this paper is based, and of which I have a record, 456 were quotidians, 84 were tertians, 7 were double quotidians, 17 were remittents. In three the paroxysm recurred upon every seventh day, one was a quartan, 3 were recorded as dumb ague, and 5 as cases of chronic malarial poisoning. Next to the quotidian, the tertian is the most common type, and all have noticed that sometimes under treatment, the quotidian becomes a tertian as the disease becomes less severe. I believe that the feeble resisting power of the infant accounts for the frequency of the quotidian type, rather than the double infection theory of Thayer.

At times the type changes; thus in Brooklyn, in the spring and summer of 1886, the type among the very young was largely tertian, in the cases I have recorded. Still it remains true that the quotidian is the common infantile form.

The double quotidian is quite rare, and I have noted but 7 cases in this series. All of these occurred in very young children, the oldest being but two years of age.

There also occurred one case of the quartan type, in a baby 15 months old, nursed, and whose mother was also ill with a ter-

tian intermittent. This case is hard to explain on the theory of a special hematozoön for each type. The mother, ill with a tertian, in all probability infected her nursling. If she did, and this is but reasonable to suppose, where did the ameba febris quartanæ come from, the mother being infected with the ameba febris tertianæ?

The chill occurs in the young child with somewhat more relative frequency than is commonly supposed. Of the 576 cases here recorded, 504 were below the age of five years. Of these, 25, or about 1 in every 20 cases, was ushered in with a chill; 27 a slightly larger number were taken ill with a convulsion. This proportion seems to teach that a child is nearly as apt to have a chill ushering in this disease as a convulsion. The following table gives a comparison of the different ages at which the chill was observed in these 25 cases.

The chill occurred at 4 months in 1 case; at 8 months in 1 case; at 10 months in 1 case.

Between 1 and 2 years in 4 cases, between 2 and 3 years in 6 cases; between 3 and 4 years in 5 cases, between 4 and 5 years in 7 cases.

It will be noticed that while in 7 cases the children were between 4 and 5 years of age, when the chill occurred; only 3 cases were observed in infants under 1 year of age. Thus, the fact is emphasized that the older the child, the more apt is it to have a well-marked chill in cases of this disease.

Convulsions occurred in 27 of these cases, 12 females and 15 males; 23 were between 6 months and 3 years of age. The remaining 4 were from 3 to 6 years of age. Thus, it appears that the older the child, the less apt is a convulsion to occur. Fifteen of the 23 cases were below the age of 2 years. Seven were below the age of thirteen months. So that it appears that up to 3 years of age the tendency to convulsions is about equally strong from year to year. The combination of first a chill, followed by a convulsion, is very rare, and is exemplified in the following case:

Annie R., 1 year old, had a distinct chill on September 10, 1889, lasting several minutes. This was followed by a convulsion, high fever, and the usual symptoms of a quotidian intermittent. This child lived in Parkville, and as the disease recurred again and again, and as the whole family were ill with malarial fever, I advised removal to Brooklyn. Finally this was done and all recovered.

In the following cases the duration of the chill was carefully noted: Novella T., 4 months old, was brought to me on September 26, 1893. The baby was ill with a tertian intermittent, and the mother was also suffering with a like attack, and nursed her baby, thus explaining the probably source of infection as to the baby. This infant had a severe chill every third day, and the last one was of twenty-two minutes' duration. Quinin was given with the usual result. William L., 33 months old, had a chill on December 31, 1893, lasting fifteen minutes, while ill with a quotidian intermittent.

Moderately Common Types.—Besides the cases seen in older children, which are similar to the adult type, there are a large number characteristic of this disease in the young, which have symptoms almost all of which are peculiar to them, but, of course, easily recognized by all. These symptoms are, in the main, convulsions, a cold, pale face, nausea and vomiting, feeble pulse, trembling taking the place of a chill, and followed by high fever, and great anemia. Often the diagnosis must be made on the periodical return of a high fever, with or without the presence of an enlarged spleen, all other symptoms being absent. Any combination of symptoms with fever may be found, with any other symptom absent or present. For instance, a child may vomit, and this may be followed by high fever, and in a few hours he may apparently be perfectly well again, and playing about. This will be repeated day after day, until the doctor is summoned, and what appeared an attack of indigestion alone will be proven by its recurrent fever, its periodicity, and its cure under quinin, to be a malarial infection.

Peculiar Types.—Many of the unusual manifestations of malaria in the young are shown by symptoms affecting the nervous system. I shall here relate some of these peculiar cases as they have occurred in my practice.

On January 22, 1900, I was called to attend Willie H., 3 years old. He lived in a highly malarial part of the city, and had been ill for a week, worse on every alternate day. When I saw the child he was very sick. His temperature was 104° F., he was screaming, and at intervals he took the position of opisthotonos. He was constipated. In addition he exhibited the usual malarial picture of the tertian type. His mother informed me that on his well days he was entirely free from fever, and that the other symptoms were less severe. While at first sight the case was apparently one of meningitis, the periodicity and the

other symptoms of malaria present rendered the diagnosis easy. He was given the sulphate of quinin, and he steadily improved. On January 29th the meningeal symptoms had entirely disappeared and the malarial were much improved. A continuance of this treatment resulted in complete and rapid cure. The case teaches how very closely the brain manifestations of malaria can simulate meningitis.

On August 13, 1886, I was called to attend Georgie H., 2½ years old. He lived in South Brooklyn. He was suffering from an untreated quotidian intermittent fever, the characteristic symptoms of which were present. This was accompanied by paralysis of motion in the right arm, principally affecting the biceps and deltoid muscles. The loss of power occurred after the attack commenced. The child was put upon the sulphate of quinin in one-grain doses, every four hours. Five days later I saw him again, and found that all the malarial symptoms had disappeared and that the child had some use of the affected muscles. The treatment was continued with gradual but steady improvement of the paralyzed member, and in eight weeks the cure was complete.

Stephen F., 2¼ years old, had been ailing since one year of age, more than half of his short life, with malaria, having attacks which recurred from time to time. At the time I was called to him, he was in the midst of an attack of a tertian intermittent, and he manifested considerable loss of power in the muscles of his legs, with difficulty in walking. The paralysis was partial only, as it is apt to be in these cases. He was put upon grain doses of the sulphate of quinin, which promptly cured the fever, and in five weeks the child had regained complete use of his legs.

Peter M., four years old, was brought to my clinic on September 15, 1887, and the following history was elicited: At birth a healthy child, he developed well, and walked at the age of eleven months. He continued well until a short time before his mother brought him, when she had noticed that he dragged his right leg when walking, and had a fever, which recurred every day. Careful examination excluded everything but a marked malarial clinical picture, and a partial paralysis of motion, probably of malarial origin, confined to the right lower extremity. Quinin was given regularly for two weeks, at the end of which time the power of motion was entirely regained and the fever had disappeared.

Sigfried B., 18 months old, was brought to my clinic on February 17, 1895, with the following history: The baby lived in a malarial neighborhood. He had been taken ill with convulsions and high fever five weeks before, accompanied by yawning and a pale face. He was cross and appeared tired. He had a recurrence of the fever every day, but was always cool and apparently well by 9 P.M. The fever was accompanied by twitching. There was also present a partial motor paralysis of the left arm and leg. On the fourteenth day the baby had another convulsion. He was put on quinin, without other treatment, and made a rapid and complete recovery.

On May 10, 1891, I saw a three-year-old boy with paralysis of the tongue. The usual symptoms of a quotidian intermittent were present. The child was put upon the specific remedy, and all symptoms of the disease gradually disappeared, the paralysis along with the rest.

George S., 2½ years old, was brought to my office on August 22, 1891, with partial loss of motion in both lower extremities. He was also ill with a tertian intermittent. He was placed on quinin, and made a slow but complete cure without other treatment.

Josie G., 2½ years old, was brought to me on May 31, 1891. She was another of these cases of partial motor paralysis. In this case, affecting the right leg. She was also ill with a quotidian. She was put upon quinin, but did not return, and I regret that I cannot give the result of the therapeutic test.

On January 27, 1896, I saw Louisa B., 3 years old. She was ill with quotidian fever, and a malarial bronchitis. There was also slight paralysis of motion in the left leg. Quinin was given in grain doses, and by February 5th the fever and cough had both disappeared. Treatment was continued, and the partial paralysis also cleared up promptly.

In three cases in this series the patients had attacks of syncope, in each case taking the place of a chill, the fever coming on afterwards. One of these was Josie W., 13 months old, whom I saw on June 12, 1895. This baby fainted twice before the fever commenced. She had the usual symptoms, and had the fever on every third day.

Malarial torticollis is about as frequently found in children as malarial chorea. I have observed eight cases. The symptom of periodicity, while generally well-marked, is not always so, as the following case will illustrate: Joseph C., 22 months old, and

living in a malarial district, was brought to me with persistent wry-neck. He gave a mongrel symptomatology, with no marked history of fever, and no history of injury. He had some of the lesser symptoms of malaria. Quinin was given regularly, and the torticollis subsided.

This next case is more typical. Fannie W., living near the Gowanus Canal, was brought in on September 19, 1893. This child had on the 17th, 18th, and 19th, on each day, a paroxysm of malarial fever, lasting about six hours, and having the three distinct stages of chill, fever, and sweating. These attacks were accompanied by a torticollis which subsided between paroxysms, to return the next day. Quinin promptly cured both the malaria and the torticollis.

Chorea of malarial origin is not rare. I have treated ten cases, six in males and four in females. Seven were above the age of six years, and three were below that age. All recovered under the use of quinin. Some of these cases were treated in the usual way, but upon the occurrence of some malarial symptoms, and after the other remedies had failed, quinin was given.

While headaches of malarial origin are not peculiar to the very young, they frequently suffer from them, and should be borne in mind. A child of two years will tell the seat of his distress, by touch, if not by speech. I believe that babies too young to tell sometimes have headache.

In fourteen of the cases reported in this paper, there was a periodic headache in conjunction with the other symptoms. The youngest child who complained of headache was three years old.

Diarrhea of Malarial Origin.—In all children suffering with malaria, a certain amount of alimentary disease is present, at least during the paroxysm. Attacks of nausea and indigestion occur, no matter how carefully the food be supervised, and pepsin given. Nausea is a very common symptom at the beginning of a paroxysm. A slight diarrhea is quite common. But in certain cases the brunt of the malarial poison is expended upon the intestine, and a paroxysmal diarrhea results, the diagnosis of which is made on its periodicity and the presence of some of the usual symptoms of malaria. The following are typical cases.

Kate H., 5 months old, lived in Sackett street. On July 16, 1888, I was called to attend her for a diarrhea which recurred every other day, and was accompanied by fever. The sulphate of quinin was given in half-grain doses every five hours, and no other treatment. A few days later the mother reported the

fever gone and the diarrhea cured, and that the child "now has a natural passage every day."

Robert C., 2 years old, was brought to me on October 11, 1886, with the following history. For several days he had had a diarrhea lasting several hours and accompanied by vomiting, yawning, and fever, followed by sweating. The first attack on the first day had been ushered in with a convulsion. He was put upon a solution of quinin and the mother returned in a few days and reported the child well.

Richard K., 2 years old, was taken ill in the fall of 1892. The baby had diarrhea, which came on every day, lasted for five or six hours, then ceased, to return again the next day. The usual symptoms of a quotidian were present. Nothing save quinin was given, with the usual result.

Among the 576 cases recorded in this paper, this form of malaria was observed in ten cases.

The diagnosis is made on the periodicity, with or without the other symptoms of a malarial attack.

Malarial bronchitis is about as commonly met with as malarial diarrhea. I have observed 9 cases, 4 in females and 5 in males. Here again periodicity is a great help to diagnosis. It is a highly diagnostic symptom, indeed, in all malarial disease.

Sometimes the cough is spasmodic, without physical signs, as in the case I am about to relate. At other times, one sees a case like an ordinary bronchitis apparently, which, however, resists the usual treatment.

On September 22, 1886, Walter P. was brought to my clinic with a spasmodic cough, which recurred every other day. On examination no physical signs were discoverable. The usual treatment with expectorants and antispasmodics having failed, the child was placed upon quinin, and was promptly cured.

Pneumonia is simulated very closely when the malaria attacks the respiratory system. But if we bear in mind the highly diagnostic symptoms, periodicity, fever, and anemia and enlarged spleen, the diagnosis cannot long remain in doubt.

Quinin will promptly clear up a suspected case, as it did the following one, which I saw in consultation with Dr. Malament last week, and whom I have asked to relate the case to you this evening:

Report of a Case of Malaria in an Infant Simulating Pneumonia.—On Sunday morning, September 2d, I was called to Baby Singer, 13 months old, artificially fed for the last 3 months.

The mother's history indicated irritative diarrhea, consisting of three or four green evacuations, with slight vomiting and a little fever that day. The child's appearance was that of a rosy, bouncing boy. His tongue was slightly coated, his abdomen was distended and tympanitic. His pulse and temperature were not taken, because of the otherwise slight symptoms. After the administration of four half-grain doses of calomel, followed by a powder consisting of bismuth beta-naphthol, 1 grain; plumbi acetat., $\frac{1}{4}$ grain, and pepsin, 1 grain. One powder to be given every $2\frac{1}{2}$ hours. The diarrhea ceased, the stools becoming an orange yellow on September 3d. On the 4th, when I was called again, the child now bore the appearance of pneumonia; exceedingly sick. There was a slight hacking cough, the face was flushed, the lips inclined to cyanosis, the alæ-nasi were actively working in and out, the expirations were grunting, the respirations were about 70, the pulse 160, and the temperature $104\frac{1}{5}$. Physical examination revealed broncho-vesicular breathing over both lungs, with marked bronchial breathing over the middle of the left lung posteriorly. There were no râles. On percussion, there was hyper-resonance over both lungs, except the left one posteriorly, where dulness was marked. Palpation of the spleen was negative. My mind was now settled on a catarrhal pneumonia. The treatment consisted in cupping the back of the chest, the administration of a diaphoretic, and a cough mixture. At night the temperature had risen to $104\frac{4}{5}$. On Thursday all the symptoms were exaggerated. The temperature reached $105\frac{4}{5}$, the respirations 80, and a marked anemia was observed. The cough increased, the pulse was 160, and the diarrhea recommenced. On Friday, September 7th, I found the condition the same, and decided to call Dr. Northridge in consultation, and the doctor saw the case with me in the afternoon. After giving the doctor a history of the case, and after the doctor had made a careful examination of the lungs, he stated that there was no pneumonia present, but a malarial infection. He advised the use of quinin in grain doses every three hours. All other medicines to be discontinued. On Saturday the symptoms remained the same. On Sunday the temperature dropped to $102\frac{3}{5}$ and the pulse to 130. On Monday the temperature was 99, the pulse 120, and the respirations about 30. On Tuesday the temperature was normal, the pulse 120, and the respirations normal. On Wednesday the child now appeared perfectly well, except for the anemia, which was still present M. J. MALAMENT.

It will be noted that on the 4th of September the infant was taken ill with an apparent pneumonia, the four clinical highly diagnostic symptoms being present. But a careful physical examination of the chest made by me on September 7th disclosed absolutely nothing, save a slightly roughened respiratory murmur on auscultation. And notwithstanding the clinical picture which has been here related, the pneumonia was merely closely simulated. In less than forty-eight hours after the first dose of quinin, the temperature dropped 3 degrees to $102\frac{2}{5}$, the next day was down to 99, and on the next was normal, and remained so. The marked anemia and the fact that the child lived in a highly malarial district aided the diagnosis.

It appears that the older the child ill with malaria, the nearer is the approach to the adult type, while the converse is also true to a degree, that the younger the child, the more obscure and peculiar are the symptoms involved.

I believe that there is still a mine of malarial mysteries into which the pediatricist must delve, to render clear some cases which are now obscure. In cases of infantile disease, where the diagnosis is in doubt, and when fever and periodicity are present, even in a slight degree, the presence of the hematozoön should be suspected.

Quinin is the specific remedy. Arsenic stands next, and is of great value. Children bear both of these drugs very well. Powdered cinchona bark, mixed with powdered licorice root, is most serviceable. In cases that persist, removal to a section free from malaria is imperative.

21 Hanson Place.

THE TREATMENT OF CLUB-FOOT.

BY ARTHUR H. BOGART, M.D.,

Assistant Surgeon to the Methodist Episcopal and Kings County Hospital.

Read before the Brooklyn Surgical Society.

From the earliest to the present time surgeons have exercised their ingenuity and skill for the purpose of correcting this frequent and unsightly deformity, and as a result of these combined efforts extending over so long a period the subject is pretty thoroughly understood.

I can hope, therefore, to add but little, if anything, to your present knowledge of the subject, but rather to call your attention to some of the more popular and modern methods.

The results in the treatment of club-foot until comparatively recently have, in many instances, been far from satisfactory, and not infrequently cases were abandoned by the older masters as hopeless. With the advent of tenotomy, antisepsis, and plaster-of-Paris, however, this branch of special surgery received a new stimulus; and from that time to the present, progress has been rapid, until to-day we have our perfected methods and happy results.

Let us assume, therefore, that all cases of club-foot occurring in children under twelve years of age are amenable to treatment, with the prospect of a perfect result and comparatively little bloodshed, providing the proper methods are used. In order to obtain what we consider the best results in these cases an orthopedic surgeon should possess an unusual amount of patience not only in the treatment of the case but also with the parents of these unfortunates, who are usually found among the lower classes. The idea of a cure from a surgical standpoint does not always appeal to these people, and not infrequently they disappear as soon as the major part of the deformity has been corrected; this fact no doubt accounts for many bad results and relapsed cases, for so long as there remains any appearance of deformity no case can be considered cured, and a relapse is almost sure to follow.

The modern methods of treatment of club-foot differ widely,

and from the mechanical contrivances of Schaffer to the free incision of Phelps, we have to select a happy medium.

Phelps, by his open incision, regardless of anatomy, seeks to divide all resisting bands, be they ligament, tendon, or muscle, and thus to place the foot in an over-corrected position, where it is retained until healing takes place and the deformity cured. No doubt they are cured, and permanently so, but is this mutilation necessary? I doubt if it is, in the great majority of cases, and am satisfied that other methods less radical may be employed which will give as good, if not better results, both from a cosmetic and a functional standpoint. I do not believe that any foot which has been partly cut in two and the resulting gap allowed to fill with scar tissue, can ever be as useful as one in which this is not the case. The normal elasticity of such a foot is bound to be more or less impaired, and scar tissue is to be avoided in any locality, notably here, as is evidenced by the fact that ever since the introduction of Phelps' operation efforts have been made to prevent its development by skin-grafting and otherwise.

As to the various mechanical appliances which have been devised for the treatment of club-foot, undoubtedly they are very useful in the hands of their inventors. We have had occasion, however, to observe the working of some of these machines, as well as to study them. The skill with which they are devised is certainly deserving of credit, but the results obtained and the time occupied failed to recommend them to us, for with them not infrequently months and even years are consumed in accomplishing what may be done in much less time by other means. And even if they were satisfactory they are not always available.

The management of club-foot, in our opinion, will depend very largely upon the age of the patient. In infancy the deformity is easily corrected owing to the soft and cartilaginous nature of the structures involved. A limited amount of manual force in such cases is all that is necessary to mold the foot into a natural position, while in older children the structures are much more resistant and rebellious to forcible manipulation, frequently requiring operative measures to effect a cure. Undoubtedly many of the failures to cure in the earlier times were due to the fact that the deformity was not fully corrected at the time of operation. The treatment of any case involves methods of correcting the deformity, and retention in the corrected position. As a rule, the first may be easily accomplished by purely manual force (pro-

viding the operator possess the required amount of strength). The latter object, however, is not so easily obtained, the tendency is toward recurrence, and it matters not how good the position may be at the first sitting, at the next there will be found a decided tendency of the deformity; the degree of relapse, however, will depend very largely upon the position obtained at the time of operation. If the foot be put in a decidedly over-corrected position at the first operation the position will be fairly good at the next dressing; if, however, the deformity has only been corrected, the tendency to relapse will be decidedly more marked: this is true of plaster-of-Paris dressings, and is undoubtedly due, to a great extent to the large amount of cotton and other dressings used after the prolonged and severe manipulation necessary in some cases. On account of this persistent tendency to relapse, I fail to see how much, if any benefit, can be expected from the gentle manipulations of a mother or nurse, as advised by some. It is the exception rather than the rule that a mother can be induced to use sufficient force to be of any value in cases of club-foot. Nor is the method of placing the foot in as nearly a normal position as possible without an anesthetic, and retaining it there with plaster bandages, one to be advised in our opinion. I recall a few such cases—usually fat, healthy children in other respects, who, with their mothers, reported from time to time to have their casts reapplied. The mothers usually brought the former casts in their hands, and the feet always appeared the same to me. After a variable length of time, depending upon the patience of the surgeon, the cases were anesthetized and the deformity corrected, with a finally good result. Such methods simply consume time and do but little good.

If we are to avoid unnecessary mutilation, scar tissue, and bloodshed, and have not the means at our command for securing mechanical appliances even if we wished to use them, we have to seek some other means whereby our object may be accomplished. I am satisfied that the hands are the best of all instruments which have, or may be, devised for the correction of the deformity of club-foot, for the reason that they meet all the indications, they always fit the case, they do not cause pressure sores, they are always ready and do not require repairs, and the same, and in most cases better, results may be obtained by forcible manipulation than in any other way, and we are independent of the instrument maker, which is something to be desired.

A foot having been placed in a proper position by forcible

manipulation the question of retention is the next one to be considered. Undoubtedly plaster of Paris meets the indications here as well, if not better, than anything else, particularly in the early stages. Later, however, for appearance sake, ease in walking and cleanliness, perhaps the Taylor shoe is more useful, and may be briefly described as follows: It consists of a flat sole plate, which follows the outline of the sole of the foot, reaching forward to the balls of the toes. At right angles to this rises an inner border, from which a shaft extends up the leg, the apparatus being hinged at the ankle with a stop joint to prevent recurrence of equinus by extension, the foot being retained to the sole piece by means of straps; the apparatus acts by leverage to throw the foot in a correct position. While we have had but little practical experience with this instrument, it appeals to us as being useful as a retention and walking apparatus, and may well be substituted for plaster of Paris in the later stages of treatment.

Having expressed ourselves briefly concerning manual force in the treatment of club-foot, we next come to consider the combined method, which is, perhaps, the most popular, particularly in older cases in which the structures are too hard and resistant to be overcome by purely manual force. This includes several operations of minor importance, as compared with the operation of Phelps.

I well remember in my student days how thoroughly I was drilled in the names, nerve supply, and action of the various muscles which are said to be responsible for the different varieties of club-foot. It seemed to me then that one with this accurate knowledge might easily cure all cases by simply isolating and dividing the contracted tendons, but, as a matter of fact, I have never done a tenotomy other than dividing the tendo-Achillis. Not only are the muscles involved in club-foot, but the skin, fascia, and bones, also share in the deformity, and are but little affected by tenotomy pure and simple.

The nature of any case naturally decides the character of operation necessary, and that of dividing the tendo-Achillis is undoubtedly the one most often called for. In cases of marked equinus it almost always becomes necessary to divide this structure, as the amount of force necessary to stretch it to the required extent will not infrequently result, particularly in infants, in an anterior dislocation of the ankle-joint, or a breaking of the structures of the foot at the medio-tarsal articulation; this condition of affairs we have had occasion to observe more than once,

and recently we have adopted the plan of dividing the tendon as the primary step of the operation; if this be not done, the dislocation or fracture may take place, although the anterior portion of the foot may be placed in a fairly normal position while the heel remains where it was in the beginning. By some it is maintained that the ligament should be spared to the last in order that it may be used as an aid in the forcible manipulation necessary to obtain a correct position; in the younger cases, however, this, in our experience, has been unnecessary, as they can easily be molded in any direction. In the older ones, however, it is quite true that after the tendon has been divided it is not nearly so easy to force the foot into position, as it does very greatly aid in the application of the necessary force.

Division of the tendo-Achillis is, in our experience, an extremely useful and harmless operation. It has been our experience, as that of others, that no evil effects are likely to follow, the wounds heal primarily under the first dressing, and good union takes place in from four to six weeks.

The correction of the equinus deformity is, as a rule, a comparatively simple matter as compared with that of the varus; this, the most difficult part of the operation, is rendered much more easy by a subcutaneous division of the plantar fascia and the results are striking and perfect in selected cases. What has been said regarding tenotomy applies as well here *viz.*: that no unpleasant results are likely to follow providing the proper precautions are taken.

After tenotomy and division of the plantar fascia the question of immediate or gradual reduction of the deformity must be decided. By some it is maintained that on account of the supposed danger of non-union of the divided structures the reduction of the deformity should be gradual rather than immediate; this supposed danger, however, does not exist; the gradual reduction, therefore, is simply a waste of valuable time. We, therefore, reduce the deformity at once, placing the foot in an over-corrected position, and retain it there with plaster of Paris.

Concerning the more radical operations of osteotomy and tarsal resection, I am unable to speak from experience, having been able to obtain good results with less radical methods in all of our cases. In looking over some of the early histories of club-foot cases at the Methodist Hospital, I find that they were quite the common thing, and I recall one or two such cases in which the results were quite satisfactory. I think, however, that such

measures have a limited field and should be reserved for the very severe cases, which are not amenable to less radical treatment. I doubt if they are ever indicated in a child under twelve years of age, and should hesitate to remove the bones from any foot until I had exhausted all other measures. It is easy to destroy, but hard to repair, and a foot without an arch is not the ideal one.

If we admit (and we are willing to do so) that the operation of Phelps is occasionally justifiable, there remains one which has recently been described in the *Annals of Surgery* which is worthy of mention since its object is to close in the gap made by the incision with normal skin rather than scar tissue.

The author, Jonas, makes a triangular flap, with its base towards the ankle, over the place where he proposes to divide the resisting structures. This flap is dissected upward, the bands divided, and the foot put in proper position, after which the flap is replaced, filling the gap, as he says, except at a small point at the anterior angle. He claims that, on account of its broad base and generous blood supply, this flap is less likely to slough than any other; and that, on account of its thickness, it more completely fills the gap than anything else.

Concerning the treatment of paralytic club-foot, what we have said with regard to the congenital variety applies as well here. To this may be added, however, the transplantation of tendons. It has been rare in our experience that any muscles of sufficient vitality remain to be of any value. As a rule, the deformity is easily corrected and usually requires some form of retention apparatus.

Having touched upon a few of the more common methods of treatment, permit me, in conclusion, to describe the usual method now employed at the Methodist Hospital, and with incomplete introduction leave the subject with you for further discussion.

If it were possible to control the parents of these patients, nursing babies might better be treated as out-patients, for the reason that no substitute can take the place of mother's milk. For the reasons already stated, however, this is usually unsatisfactory; therefore, for their better management they should be admitted to the hospital.

As in all cases, it is necessary to give these patients an anesthetic. The usual preparation as regards cleansing are made, but the further preparation of a baby for an anesthetic differs from that of an adult. It does not do to starve a baby for five or six

hours before operation, nor should the feedings be interrupted afterward. They do not stand such treatment well in our experience.

The part to be operated upon is prepared as carefully as if a cutting operation were expected, which is rarely necessary with the one exception of dividing the tendo-Achillis. After the anesthetic has been given the usual scrubbing is repeated and the foot thoroughly dried with a sterile towel in order that it may be more firmly grasped and held during the necessary manipulations. In young children the tendon is then divided in the usual manner and the equinus reduced, after which the foot is forcibly placed in an over-corrected position. If during the necessary manipulations the skin on the inner side of the foot be torn, an accident which may happen but which is to be avoided, the final result will be the same, providing we have been careful to protect it from infection. The deformity having been over-corrected, a plaster of Paris dressing is applied. In the application of this dressing it is important that the foot should be held in an over-corrected position until the plaster has hardened sufficiently to hold it there, and that sufficient dressings are applied to prevent undue pressure and sloughing, for having been so roughly handled the parts are more tender and likely to suffer from pressure than they otherwise would be. This complication is one to be avoided and every precaution should be taken against it.

The first dressing is removed at the end of one week providing there has been no indication for its removal earlier. It may be that no anesthetic will be necessary at this dressing if the tendency to relapse is but slight. These manipulations are repeated from time to time, until a satisfactory result is obtained.

After the primary operation, providing the handling is not too severe, the amount of dressings can be much reduced, with the result that the foot is better held, until finally, when all resisting bands have been broken up and the foot rendered freely movable in all directions, a flannel bandage and a very light cast will suffice to retain it in place. The child is now encouraged to walk, which still further tends to improve the position and final result.

The time for beginning the treatment of club-foot should be as soon as it is recognized. If the treatment of all these cases were begun in infancy the necessity for the major operations would be slight, and the results would be far better than can be obtained later in life.

Finally, I am satisfied the reduction by manual force repeatedly applied, and retention by means of plaster of Paris is the most satisfactory method of treating club-foot, and when we add to this tenotomy of the tendo-Achillis, and subcutaneous division of the plantar fascia, I am sure that the great majority of cases can be satisfactorily treated, and permanently cured.

I would reserve, therefore, the open incision, tarsal resection, and osteotomy, for those extremely rare cases which cannot be corrected by other means, and I doubt if they exist under twelve years of age.

Discussion.

DR. L. S. PILCHER said that he would accept nearly everything that the essayist had stated, as expressing the facts of what the speaker believed to be sound surgery and those which are generally accepted at the present time, with one exception. Though it possibly might still come under the category of facts that are generally accepted, it was hardly what he himself would be willing to subscribe to. He referred to the very last statement which the essayist made, in which he claimed that these more serious surgical procedures, such as the open operation and the various degrees of removal of bone, should be reserved for those very rare cases which were extreme in their character and had resisted less severe methods of treatment, and then, last of all, be never operated upon under twelve years of age. It seemed to him that this last restriction was hardly a tenable statement. He would not object to accepting it if modified to say that in the essayist's experience it had never been necessary under twelve years of age to do the bloody operation: but to say that never under twelve years of age is there such a degree of deformity as cannot better be relieved by manipulation and fixation, as will not sooner be converted into a satisfactory condition and as will not give an ultimately better result than by these more serious surgical procedures, under twelve years of age, he thought was hardly defensible. There may be every degree of deformity in these cases of club-foot. There are many of them in fact, although rare comparatively, in which the deformity of development is such that a much less severe disturbance to the nutrition and framework of the foot is accomplished by a proper resection, limited or extensive as the case may be, sufficiently to restore the general contour of the parts whatever that may be, than attends the prolonged and

forcible and, in some cases, unquestionably ineffectual methods of forcible manipulation, correction, and retention, such as has been described in the paper and such as are undoubtedly of great value in the average case. While accepting all of the advantage which comes from these methods of manipulation in general, yet it seemed to him it would be well while discussing this subject broadly and generally, to recognize these other conditions and to recognize the fact that they do exist early in life, as well as in the more neglected simpler cases that have been permitted to grow worse. The more severe cases do exist early in life as well as later, and do demand for their best management these various degrees of bone removal.

DR. GEORGE R. FOWLER said that there is a good deal to be said on both sides of the subject of the operative and non-operative treatment of club-foot. Unless we take into account the extent of the bone deformity (and this may depend to some extent on the period of intra-uterine life when the deformity actually commences) we shall fall into routine methods in which there will be a good deal of empiricism and comparatively little success in the long run.

To say that all cases under twelve years may be treated non-operatively and that most cases above this may or may not require operative treatment, is to make a statement scarcely to be received with the full force with which it was given. He scarcely thought the reader of the paper would want us to persist in the attempt to treat cases of club-foot under twelve years of age without operation, in spite of marked deformity due to the misshapen astragalus so frequently found in these cases.

In the speaker's earlier experience he had been in the habit of following the dictum of Adams, which was never to cut the tendo-Achillis until all the rest of the deformity had been corrected. He had long since ceased to insist upon this, and in more recent years he had done the operation of tenotomy of the tendo-Achillis in the early part of the treatment, correcting the equinus at the same time that the varus was corrected. Yet with all of this correction there are cases coming under the care of surgeons in which the attempt to force the foot from the varus position as well as to correct the equinus, which will persist in many cases even after the tendo-Achillis has been divided, has resulted but indifferently. Not a few of these require in after years some operative interference upon the osseous structures, even though

apparently good results have been obtained earlier in the treatment.

To say that the arch of the foot is destroyed by Phelps' operation is probably true; but any procedure by manual force or operative interference which either forcibly stretches the plantar fascia, or aids in the restoration by the division of the plantar fascia, results in more or less loss of the arch of the foot. He thought this generally could be accepted as true.

The method of removing a wedge-shaped portion from the outside of the foot rather than dividing the plantar fascia or persistently attempting to stretch it, is far less likely to do permanent damage in this particular respect and is certainly followed by exceedingly good results. The speaker had been able to apply this method in comparatively young children where it was almost impossible to correct the deformity and keep it corrected with the occasional visits which the parents of the patients would pay to the out-door department in which this work was done in his earlier experience, and he found a very satisfactory substitute in this operation for the painful and frequently unsatisfactory method of over-correction and application of the plaster of Paris bandage.

He believed we should not fall into any routine method of treatment, and that here, as in all other surgical questions, the truth will be found to lie somewhere half way between extreme statements. To absolutely renounce all operative procedures and state that these should not be applied under twelve years of age is quite as wrong as the persistent application of operative interference to all cases alike. The proper study of the individual case and the resort to the means which seem to be indicated in the particular case, it seemed to him, would be stating the matter much more fairly from the surgical standpoint.

DR. WALTER C. WOOD said that there are two points which have presented themselves to him in the past in reference to this matter. One is the number of cases that relapse after an apparently successful treatment, and the second is that all cases require retentive apparatus to prevent such relapse. Ten years is about the time required, in his experience, to cure a case of club-foot. It is a question of growth, not simply a question of surgery or a question of manipulation; and growth takes time. In Forty-second street he used to see a large number of cases of club-foot that were styled "relapsing club-feet." These cases had been treated carefully and well, within hospitals and without, by

tenotomies, by manipulation, by plaster of Paris, but after the child had passed from under treatment for two or three years, the foot relapsed.

In those cases that had come under his care he had followed pretty closely the teachings as laid down in an article published six or eight years ago by Hartley in the *Annals of Surgery*. Hartley proved from statistics and the results of many cases that to obtain permanent good results in club-feet, it required years of careful treatment such as was described by Dr. Bogart; or in place of that, not as a theoretically better method, but as a practically better and necessary one, some bone operation in a case of average or marked severity. When the speaker had done a bone operation it had been an excision of a wedge-shaped piece on the outer portion of the foot.

He believed cases, even with that operation, required plaster of Paris and the brace, one and then the other, for three, four, five, or more years; in fact, he had not practised surgery long enough to be sure how long these cases require careful watching.

The treatment that Dr. Bogart had outlined he was sure was the one for the infant: but he was equally sure that unless these cases are followed until the child reaches the age of twelve years, a certain proportion of them will come later to some more serious surgery to correct the relapsing deformity that he believed as a rule resulted in cases of marked severity.

DR. A. H. BOGART said that he should be perfectly willing to accept Dr. Pilcher's correction and say "in my experience." He should have said so before. But, in spite of that, he had his doubts as to whether it is necessary in the majority of cases of club-foot under twelve years to remove bones or do Phelps' operation. He thought if surgeons had sufficient patience and strength they can reduce the deformities; and if retention apparatus is kept on long enough the cases will be cured, and cured permanently. It is to be expected that in a meeting of general surgeons such as this, they would naturally recommend the more radical operations, but it was his opinion that time and patience applied in treatment will work just as well as Phelps' operation, tarsal resection, osteotomy, or anything else.

THE PRESENT STATUS OF THE THYROID EXTRACT IN THERAPEUTICS.

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Read before the Brooklyn Neurological Society, Dec. 27, 1900.

Of the animal extracts used as remedies, thyroid was the pioneer. Many other kindred substances have been put before the medical profession from time to time, and have received a varying amount of attention. So far, however, thyroid stands far in advance of them all, both in its efficacy and in the range of its application. It is the object of this paper to give a brief résumé of the results obtained from its use, and to define, as far as possible, its position and scope as a therapeutic agent.

The function of the thyroid gland is not well understood, but there seems to be the best possible reason for believing that it secretes and throws into the circulation some product essential to normal metabolism. Its complete extirpation results in what is fairly familiar to us all as cachexia strumapriiva. In goitre, on the other hand, where there is excessive and probably perverted action of this gland, a series of phenomena known to us all as thyroidism show themselves, which phenomena are pretty certainly ameliorated or cured by partial removal of the thyroid body, and thereby the reduction of its function. In myxedema, for example, the relation of the morbid symptoms to the thyroid function is further substantiated by the fact that the artificial introduction of the thyroid product into the system causes them to disappear.

From extensive experimentation the following physiological action seems to obtain. When administered to the adult in doses of 5 grains three or four times a day the circulation is first affected. The heart's action is accelerated without any increase of its force. The vasomotor apparatus is depressed and the vascular tone thus lowered. The pulse becomes soft and quick, and if the dose is still further increased to 10 or 15 grains, three times a day, the patient may complain of palpitation, vertigo, shortness of breath, trembling, some numbness of the extremities,

possibly, and a feeling of weariness. Blueness of the lips and the finger tips, and more or less pallor, will likely be noticed, and if the dose is pushed much higher fatal syncope may result, and death may occur by heart failure. I have seen no such untoward result, and my statement in this regard is inferential. In fact, I look upon the product as a safe one to administer, if it is pure and is given with the proper precautions and adjuvants.

It affects the temperature, but less markedly and uniformly. Given as above described, it usually causes a sharp rise of temperature, one or two degrees, which soon subsides to about normal, without decrease of dosage. After prolonged administration the temperature seems to be practically unaffected in the majority of cases. As to how far these temperature and circulatory changes are due to impurities in the remedy are questions which need further investigation. I certainly hear less about violent results from the exhibition of thyroid extract nowadays than formerly.

On the nervous system its effects are still less definite. A sense of mental clearness is produced in those patients who bear the drug well, with increased mental clearness. There is abundance of evidence to show that it acts in some way as a cerebral stimulant, but this is certainly more noticeable in its effect upon depressed mental states than upon the normal mind. In a case of subacute chronic arthritis of the knee-joint in a sane man now under treatment with thyroid, because the case had failed to respond to the usual means, the patient, who had been very apathetic, soon expressed a desire to get up, and showed an unwonted interest in the newspapers. The knee does not improve noticeably, and the patient declares that he does not experience the slightest change in his feelings except that his appetite is not so good. He has lost flesh somewhat, and probably on this account.

In the stomach thyroid is mildly irritant, and may produce some disorder with failing appetite, but, as a rule, food is taken with about the same relish as before, and the powers of assimilation are certainly not weakened. The loss of flesh, which is seen in about one-half of the cases, and which, as a rule, is inconsiderable, is to be accounted for by increased tissue waste. Rarely is there disturbance of the bowels, especially if the product is fresh, but the nitrogenous elements of the urine are largely increased. The skin usually becomes clear under prolonged administration of the remedy, and the tendency to perspiration increased but without bromidrosis. Desquamation occurs in most cases which have been

under treatment for any length of time. Menstruation was re-established in the great majority of my cases not past the climacteric, in some of whom it had been in abeyance for many months. Respiratory action is increased and the amount of oxygen consumed, as well as the carbon-dioxide given off, augmented. All observers are agreed upon this point, and offer this as an explanation of its anti-fat properties.

The findings, as regards the changes in the blood, induced by thyroid are by no means uniform. As far as my own observations go I have to confess that I have not discovered any uniformity that would approach a law in this regard. Some of my readers may have been more successful. Any changes induced seem to disappear very quickly when the remedy is withdrawn.

To sum up in one sentence. The thyroid extract is a powerful alterative. Its use is likely to be of service, however, only in those diseases which are in some way related to partial or total suspension of the thyroid function. Its action is almost specific in myxedema, sporadic cretinism, and the cachexia which follows the extirpation of the thyroid gland. Its use in insanity is in some degree justified rationally on the ground that in that disease altered glandular action and disordered metabolism are almost universally found.

More or less empirically, perhaps, thyroid has been tried in many forms of disease. It is a constant ingredient in anti-fat remedies, and M. Porges has made extensive experimentation in this regard. He finds that the majority of cases show no improvement whatever, while the few, and those are those cases which readily show the physiological action of the remedy, experience some benefit. He thinks that in these cases the fatness, in some measure at least, is due to the defective action of the thyroid gland, and hence the exhibition of the thyroid extract is highly rational. On the whole, he condemns its use in this class of patients, as the benefits derived are not worth the hazard undergone while taking the treatment. I have never seen marked loss of weight in any of over twenty-five cases, and while I occasionally found a gain, in the majority there was no change that could be accredited to the product.

It has been tried in many forms of skin disease, both internally and as a local application. The results reported are variable. Scleroderma, psoriasis, eczema, and ichthyosis are said to do well occasionally, and of late I have seen very encouraging reports of it in stubborn cases of diffuse eczema. Externally it

has been tried in various forms of chronic ulcer, but the reports of results have not been such as to show that it had any special value for this purpose. I have not had an opportunity to try it in hemophilia, but I have reason to believe that it sometimes proves to be of avail. De Lace reports a case of severe purpura in which thyroid effected a complete cure. It has been tried in the late forms of syphilis, but so far only an occasional report has been favorable in this disorder. In the scleroses it has failed, on the whole, as might have been expected, though there have been favorable reports. In my hands it has done no good, and I cannot recommend it here.

As an emmenagogue I have seen it repeatedly succeed when other means had failed, but when I have given it for this purpose solely, it seemed to be useless. In cases of insanity where the menstrual function was in abeyance, I found that when the remedy ameliorated the patient's general mental and physical condition, return of the menses was among the other signs of improvement. But in no case was menstruation re-established as the only apparent result of the treatment. In exophthalmic goitre, with or without mental symptoms, it seems to be positively harmful. I tried it in such a case and only saved my patient from collapse by the prompt use of strychnia.

It remains to discuss the use of thyroid in the treatment of insanity. There has been much experimentation along this line in the past few years and opinions widely differing have been formed. Some observers think it of the highest value in this regard; others, as Kellog, for example, claim that it is usually harmful. These latter hold that the vertigo, emaciation, general reduction of strength, and other symptoms, far outweigh any temporary advantage which may be produced. Some observers say that they always get untoward results from its use and abandon it in disgust. Dr. Burgess, the Superintendent of the Protestant Asylum of Montreal, has given an account of an elaborate series of experiments made by him, with this remedy, in which the most desirable results were had. He is very enthusiastic, and places the drug in the first rank of all remedies for the treatment of all curable types of insanity. Clouston says that no case of pure insanity should be given up until the course of thyroid has been tried, and the results that I have obtained demonstrate the correctness of this dogma.

For my own part I have used this remedy in about thirty cases. I selected my cases from the curable types of insanity, and of late

have chosen only those which had run some time and begun to show signs of chronicity, and proceeded on the principle that a remedy has not had a fair trial until it has been given in doses which produce its physiological action. If a case showed any tendency to vertigo, I always put it to bed and gave in conjunction with the thyroid, strychnia and arsenic. Mine were hospital cases, which I was able to see every day, and with the exception of that referred to above, I have seen no bad results from the action of this remedy, and have come to regard it as a safe one to use. Without going further into details I will cite a few cases.

CASE I.—Female, aged 17, suffering from atonic melancholia, second attack, of nine-months' duration; had not spoken for nine months, was apathetic and stupid, negligent in her habits, with poor appetite and uncertain sleep, and no menstruation since attack began. She received 5 grains t. i. d. for two days, in which time her pulse ran up from 74 to 86, without material change of temperature. The third day she had $7\frac{1}{2}$ grains t. i. d., without noticeable change in her condition, and the dose was increased to 10 grains, when the temperature rose to 100 and the pulse to 91. In four days the dose was made $12\frac{1}{2}$ grains, and held at that for ten days. The temperature gradually receded to normal, but the pulse hovered about 100. The dose was then made 15 grains t. i. d., and so continued for twelve days, when both pulse and temperature gradually sank to normal. Four weeks after treatment was begun convalescence was established and the drug was withdrawn. A few weeks after she was discharged recovered. Her statement regarding the matter was that her mind gradually became clearer, and she felt better day by day while she was taking the remedy.

The following case was less satisfactory, but illustrates the harmlessness of large doses. Female, 18 years of age, suffering from atonic melancholia for twenty months; silent, stupid, negligent in her habits, suicidal, requiring to be tube-fed; eyes firmly closed, as in spasm: thin, anemic, and weak; spasm of adductors of thighs so great that she could not walk, and no menstruation since attack began. She was put on thyroid, in doses of 5 grains t. i. d. A rapid rise in temperature to 103 took place in twenty-four hours, but quickly receded to normal, when the drug was increased to $7\frac{1}{2}$ grains for five days. The temperature rose about one degree and soon sank to normal. The pulse at no time went above 80. The dose was then made 10 grains, which caused some rise in the temperature, but had little effect on the pulse.

the respiratory action, however, being increased to 24. The dose was then made $12\frac{1}{2}$ grains for six days, without practical change in the symptoms, when the dose was increased to 15 grains t. i. d., and held at that for twenty-one days. The respiratory action continued high, ranging from 24 to 27 a minute; the temperature fluctuated between normal and 100, and the pulse kept at about 86, gradually receding to 72. Four weeks after the drug was begun menstruation occurred, she began to recognize her friends, took food heartily and occasionally opened her eyes, and whistled and laughed. When sitting up she became short of breath and showed extreme pallor, with blue lips and nails. No further improvement was made, and the remedy was stopped, after having been given thirty-seven days and in quantity amounting to 1,447 grains. The patient then rapidly became stupid again, muscular spasm returned, and menstruation ceased to occur. She had gained in weight and there was a remarkable clearness of the epidermis.

The third case was one of acute mania, of ten-months' standing. She was very troublesome, restless, destructive, and sleepless. No menstruation since the trouble began, and she had the unkempt and wild appearance of a case of chronic insanity. Thyroid was administered in 5-grain doses, which were increased to $7\frac{1}{2}$ in five days, and to $12\frac{1}{2}$ two days later, and one week later to 15 grains t. i. d. The third week of the administration she menstruated, and thereafter convalescence was rapid and the patient was discharged from the hospital in a few weeks cured, and she remains so at this writing, one year later.

The next case was one of acute melancholia of a few weeks' duration. She was still suicidal and depressed, and the constant reference to her dead children showed that the cause of her mental trouble was still active. The remedy was given systematically in carefully regulated doses, but from the first the patient complained of vertigo, shortness of breath, and numbness of the extremities. A slight rise of temperature, with marked increase of the pulse-rate, was observed, and the drug being plainly harmful, was discontinued in two weeks. I have cited this case because of its bearing on the applicability of the remedy. In acute and recent cases, where the cause of the alienation is still active, I have found the thyroid usually ineffectual if not harmful. The reason is not far to seek. No alterative is likely to change the nature of a psychical influence which is producing mental alienation. It is only in cases where this influence has practically exhausted

itself, and the mental disturbance is prolonged in consequence of tissue changes or of toxins engendered within the body, that the remedy is of avail. Its action here is a physiological one. By assisting the thyroid gland metabolism is increased and accumulated morbid products more rapidly disposed of. This is the guiding principle in the use of the remedy under discussion.

I might cite many other cases, but they will serve only to corroborate what has been said. It remains only to sum up by saying that the thyroid extract is a powerful alterative possessed, it is true, of some toxic properties, which may disappear under better methods of obtaining the drug, but it has already proven itself to be of great service in the treatment of insanity. These cases, as I have said, are curable forms after the acute symptoms have passed by and there are beginning signs of chronicity. In other words, administer thyroid late rather than early in mental disorders.

DISCUSSION.

Dr. Combes asked if Dr. Elliot had ever tried the extract in smaller doses, and with what effect? Personally, he had had little experience in one or two cases, but neither of which was cases of insanity.

Dr. R. M. Elliott said the matter had been given close attention at the Long Island State Hospital. They had tried it for five years in a large number of cases, particularly in cases of depressed type, but with results not so favorable as other reporters. True, cases of melancholia recovered under its use, but so did other like cases just as well without it, so that we do not claim much for its effects. Should not use it in exophthalmic goitre he had seen harm done, but good results in myxedema.

Dr. M. J. Morton said he was glad to hear the interesting paper, and could confirm the views expressed by the author. In goitre he had seen harm done, but good results in myxedema.

Dr. Brush had had very little experience with the use of thyroid extract in insanity; in fact, had tried it in one case without marked results, but had had a very extensive use in syphilis of the nervous system, and particularly in spinal syphilis. He based his theory on its use from its composition of iodine and colloid material. He had had specially good results in paraplegic cases, a noticeable case being that of a physician in the E. D., with spinal syphilis, which, under the usual treat-

ment gave no result, but markedly improved under this treatment; then, again, in other cases, he had had no result, and the only way to find out what cases would be benefited by its use was to try the remedy and find out. In cretinism he had seen improvement, but never in exophthalmic goitre, the symptoms of which he had seen produced in a case in the practice of Dr. Parrish, who had given the extract in a case of obesity, ordering one dose of 5-grain tablet to be taken t. i. d. On the basis if one did good more would do better, she rapidly consumed nearly the whole bottleful, with the result of producing rapid heart action, organic enlargement of the thyroid gland, eyeballs prominent, tremor, depression, inability to rise, syncope, and some delirium. He thought some of these poisonous symptoms were produced by the connective tissue, often given with the glandular tissue, and, therefore, thought it was well to use care and give only the active principle of the gland and not any of the connective tissue, as is often found in ordinary tablets.

Dr. Haynes said that he had seen marked improvement in several cases of cretinoid myxedema so long as the patient took the extract, yet the improvement was never to the full extent of a normal person of the same age, and when the drug was suspended they always relapsed. He had had the misfortune to lose a case of exophthalmic goitre through an unscrupulous druggist giving thyroid extract when thymus was ordered, causing profound symptoms of poisoning and death. He had found the drug helpful in those neurasthenic cases, with symptoms of depression on the border line with melancholia; in fact, in what is termed by most writers, particularly the Germans, as melancholia simplex, where the condition is accompanied with marked disturbance of metabolism, ordinary doses, without producing physiological effects, will be found helpful.

Dr. Hiram Elliott, in answer to Dr. Combes' question, said he had given the drug in small doses, but had never seen any effects from such use; in fact, he does not believe one can claim having tried it till one has produced the physiological action. As to the scope of its usefulness, it probably will be found useful only in diseases due to atrophy or disorders of the thyroid gland, and will be of avail only in conditions due to this disturbance.

THE BROOKLYN MEDICAL JOURNAL.

Communications in reference to Advertisements or Subscriptions (Subscription Price \$2.00 per annum) should be addressed: Business Manager, BROOKLYN MEDICAL JOURNAL, 260 Hancock Street, Brooklyn, N. Y.

Exchanges should be addressed: BROOKLYN MEDICAL JOURNAL, 1313 Bedford Ave., Brooklyn, N. Y.

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EDITORIALS.

Medical Library of the County of Kings.

The erection and equipment of this new medical library building is the most progressive step which the medical profession of the county has ever taken, and the double act of the County Society in voting to place upon its walls a tablet dedicated to Dr. William Browning, to whose efforts are due more than to those of any other one man the proportions which the library has assumed, and at the same time electing him to the honorable position of president, is an expression of the appreciation in which his services are held. It now remains for individual members of the profession to supplement this work that has been accomplished by donating either now or by will their libraries to the Society. In every library are many books which are never opened by their owners; but a small proportion is in practical use. The former should be placed where they are safe from the ravages of fire, and where they will be available to those engaged in historical research. If all the members of the Society will spend but a short time in culling the books on their shelves, donating to the Society those not of present or future use to themselves, the accessions of

the present year will far surpass those of any previous year in the history of the Society. This action should be supplemented by the addition to their last will and testament of a clause donating the whole contents of their libraries; for when death occurs such collections are of little value to those who remain, sacrificed as they are at public auction or sold for old paper.

**Daniel Lewis, M. D.,
State Commissioner
of Health.**

The bill providing for the abolition of the State Board of Health of New York, and its reorganization under a single commission, has become a law, and under it Governor Odell has appointed Daniel Lewis, M.D., commissioner, at a salary of \$3,500. Those who are familiar with the workings of health departments under boards and under single heads will congratulate the people of the State on this change. Not that the late State board was inefficient, but whatever its merits, all these will inhere in a single commissioner, while there will be the additional effectiveness and direct responsibility which a multiple head cannot possess. In addition to this cause for congratulation the people are to be congratulated that one who has demonstrated his ability to conduct this department has been selected by the appointing power. Too often such positions are made for political purposes, which require their filling by politicians, whose principal claim to the office seems to be that their knowledge of sanitary affairs is nil. If Governor Odell in his future appointments maintains the standard of excellence which he has set up in the appointment of Dr. Lewis, his administration cannot but be a success, and his record one upon which he can look back with pride when he doffs his official robes.

**Leprosy
in the
United States.**

The as yet unsettled question as to the contagiousness of leprosy is rapidly assuming for the people of the United States a much greater importance than ever before in the history of this country. If it is contagious our new relations with Hawaii, the Philippines, Cuba, and Puerto Rico must result in an extension of the disease to an alarming extent unless more vigorous measures are devised and enforced than now obtain. Of its contagiousness there would seem to be considerable proof, not in its anesthetic form, but in those instances where there are cutaneous or mucous lesions; otherwise how can the fact be explained that of 100 cases which have

been observed in Great Britain in the last decade, 98 at least contracted the disease in leper colonies; and of the 1,500 cases in Spain, most of them were soldiers or monks who had been in the colonies of that kingdom?

The act of Congress of 1898, providing for a commission to investigate leprosy and recommend legislation for its control, appears not to have as yet produced any practical fruit; the matter is, however, one which demands, and should receive, prompt and scientific treatment. It will be easier to institute effective measures now than after the disease has obtained a firmer foothold, and spread so far as to be beyond control, except by measures which must prove to be arbitrary and harsh. If some of the anti-expansionists would direct their attention to this phase of our country's increased territory they would be doing a public service and merit approbation where they now receive condemnation.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Tuesday Evening, February 19, 1901.

(1313 Bedford Avenue.)

The President, William Browning, in the Chair.

There were about 150 members present.

Minutes of the previous meeting were read and approved.

REPORT OF COUNCIL.

Council recommended the acceptance of the resignation of Dr. R. H. Sullivan on account of removal from the County. On motion, Dr. Sullivan's resignation was accepted.

The Council reported favorably upon the following applicants for membership:

Walter T. Slevin, L. I. C. H., 1898.

Justus L. Buckley, Jr., Syracuse Univ., 1900.

E. F. Lindredge, Bellevue, N. Y., 1875.

Cornelia A. McConville, Wom. Col. N. Y. Inf., 1894.

Harlow E. Dunton, Vermont Univ., 1877.

Peter A. Requa, Univ. Vermont, 1896.
 Grace D. Ives, Wom. Col. N. Y. Inf., 1898.
 Geo. L. Stivers, L. I. C. H., 1899.
 Charles E. Gardiner, L. I. C. H., 1899.
 C. F. Buckley, P. & S., N. Y., 1898.
 Fred J. Kirk, Queens Col., Can., 1892.
 John C. Medd, L. I. C. H., 1896.
 J. H. Moore, L. I. C. H., 1874.
 Wm. A. Myers, Univ. N. Y., 1888.
 Thomas A. Pineo, L. I. C. H., 1898.

APPLICATIONS FOR MEMBERSHIP.

Frank Henry Knight, 700 Nostrand Ave., Col. P. & S., 1899.
 Nominated by Wm. F. Dudley; seconded by H. Wallace.

James Watt, Long Island College Hospital, L. I. C. H.,
 1900. Nominated by Membership Committee; seconded by C. R.
 Hyde.

Andrew M. Gillen, L. I. C. H., 1897. Nominated by J. J.
 Lyons; seconded by Wm. F. Dudley.

James Henry Bertram Dowd, Williamsburg Hos., L. I. C. H.,
 1900. Nominated by J. J. Lyons; seconded by J. M. Winfield.

E. M. Bulwinkel, 80 South Ninth St., L. I. C. H., 1898.
 Nominated by Charles H. Tag; seconded by W. F. Dudley.

Charles R. Jenkins, 31 Conselyea St., L. I. C. H., 1899.
 Nominated by Membership Committee; seconded by C. H. Tag.

Edward L. Parker, Long Island State Hospital, Brooklyn
 (Residence): Medical Dept. of the Univ. of Syracuse, 1896.
 Nominated by William Browning; seconded by George
 McNaughton.

J. Denton Shea, 427 Eighth St., P. & S., N. Y., 1896. Nom-
 inated by O. A. Gordon; seconded by David Myerle.

Addison Raynor, 977 Flatbush, P. & S., 1893. Nominated
 by Charles N. Cox; seconded by William Browning.

E. L. Bruen, 552 Hancock St., L. I. C. H., 1899. Nominated
 by Wm. P. Pool; seconded by William Browning.

Joseph Meyer, 228 Vernon Ave., P. & S., 1877. Nominated
 by William Browning; seconded by Weisbrod.

V. J. Gallagher, 20 Lenox Road, Univ., 1892. Nominated
 by William Browning; seconded by David Myerle.

John Meade Callender, 174 Remsen St., Univ. of Virginia,

1896. Nominated by Walter C. Wood; seconded by R. W. Westbrook.

Tracy Earle Clark, 705 Macon St., L. I. C. H., 1900. Nominated by Henry P. de Forest; seconded by George W. Colby.

John T. Davis, 400 Hancock St., Bellevue, 1874. Nominated by Henry P. de Forest; seconded by George W. Colby.

Alexander Gilligan, 74 Hicks St., L. I. C. H., 1899. Nominated by Henry P. de Forest; seconded by George W. Colby.

Shirley Nathaniel Combes Hicks, 415 Fulton St., Jamaica, L. I., Cornell, 1900. Nominated by Henry P. de Forest; seconded by George W. Colby.

Joseph D. Hoar, 95 South Portland Ave., Univ. of N. Y., 1887. Nominated by Henry P. de Forest; seconded by George W. Colby.

August Hoorle, 166 North Sixth St., Columbia (P. & S.), 1885. Nominated by Henry P. de Forest; seconded by George W. Colby.

Robert F. J. Hussey, 471 Willoughby Ave., L. I. C. H., 1894. Nominated by Henry P. de Forest; seconded by G. W. Colby.

P. Francis Hogan, 318 Fiftieth St., Univ. of Michigan, 1872. Nominated by Henry P. de Forest; seconded by George W. Colby.

William McAlpin, 469 Ridgewood Ave., P. & S., Baltimore, 1896. Nominated by Henry P. de Forest; seconded by George W. Colby.

F. J. McCammon, 359 Stuyvesant Ave., Queens College, Kingston, Can., 1892. Nominated by Henry P. de Forest; seconded by George W. Colby.

Edward Judson Van Wagner, 163 Montauk Ave., Univ. of Kansas, 1886; L. I. C. H., 1890. Nominated by Henry P. de Forest; seconded by George W. Colby.

Charles A. Van Urff, 170 Barbey St., L. I. C. H., 1890. Nominated by Henry P. de Forest; seconded by George W. Colby.

CORRESPONDING MEMBER.

John W. Wagner, Greenwich, Conn., Jeff. Med. Coll., 1897. Nominated by John R. Stivers; seconded by Wm. S. Hubbard.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the Council, were declared by the President elected to membership:

Wm. H. Biggam, P. & S., N. Y., 1881.

Geo. H. Davis, L. I. C. H., 1895.

Harold D. Brewster, L. I. C. H., 1898.

Howard J. Seeley, L. I. C. H., 1899.

Benj. F. Corwin, Yale, 1897.

Jno. L. J. Gormly, L. I. C. H., 1897.

Chas. O. Tupper, Jeff., 1886.

Cameron Duncan, Bellevue, N. Y., 1898.

Edw. W. Carhart, Albany, 1878.

J. Richard Taylor, Univ. Penn., 1878.

Wm. C. Woolsey, P. & S., N. Y., 1898.

Howard B. Snell, L. I. C. H., 1899.

Walter Bryan, N. Y. Univ., 1890.

Elias P. Hicks, Univ. Vermont, 1898.

The President appointed the following Standing Committees for 1901:

Membership—W. F. Dudley, C. H. Tag, J. J. Lyons.

Directory for Nurses—F. H. Stuart, Caroline H. LeFevre, J. Fuhs.

Entertainment—C. N. Cox, W. B. Brinsmade, H. L. Schelling.

Legislation—J. T. Duryea, V. A. Robertson, W. F. Campbell.

Public Health—E. H. Wilson, Z. T. Emery, H. H. Morton.

Historical—J. H. Hunt, Wm. Schroeder, E. E. Cornwall.

SCIENTIFIC SESSION.

“Serum Therapy in Streptococcus Infection.” By Dr. Earle H. Mayne. (Paper and specimens.)

Discussed by Drs. A. T. Bristow, George R. Fowler, J. B. Bogart, Wm. Maddren, and closed by the writer.

“The Genesis of Uric Acid.” By Prof. R. H. Chittenden, Director of the Sheffield Scientific School of Yale University.

Dr. Bartley moved that the members of the Society express to Prof. Chittenden, by a rising vote, their appreciation of his kindness in coming from New Haven to present this subject to the Society.

(Motion carried by a unanimous rising vote.)

The President announced the death of Dr. Guthrie R. Winder, which occurred in Brooklyn on January 25th; and also the death of Dr. Steven Chandler Griggs, at Nutley, N. J., on February 1st.

The Council reported that the Section on Pediatrics had presented their by-laws, which had been approved.

CARE OF INEBRIATES.

The Secretary reported that the bill on this subject, which was ordered printed, had been distributed to the members of the Society.

After discussion, the matter was referred to the Committee on Legislation for report.

REPORT ON WATER SUPPLY OF BROOKLYN.

Dr. Raymond referred to the Report of the Committee on Public Health in reference to the water supply of Brooklyn, which was presented at the annual meeting of the Society, and moved:

"That it is the sense of this Society that this report on the water supply, so far as the papers will publish it without expense to the Society, or at least the conclusions of the Committee's report, be published in the daily papers of Brooklyn."

Motion seconded and carried.

On motion, adjourned.

DAVID MYERLE,
Secretary.

BROOKLYN GYNECOLOGICAL SOCIETY.

Stated Meeting, March 22, 1900.

(Continued from page 161.)

BLADDER AND RECTAL EXAMINATIONS.

BY JOHN O. POLAK, M.D.

The part of this symposium which has been assigned to me, includes the consideration of those conditions of the bladder and rectum in ambulatory patients which may be successfully treated in office practice.

As the bladder is reached via the urethra, it seems but justifiable to take a few moments of your time in discussing the affections of this structure.

The pathological changes involving the urethra and coming within the scope of these remarks are as follows: Urethral caruncle, infection of Skene's glands, prolapse of the mucous mem-

brane, polypus, acute and chronic urethritis and fissure of the neck of the bladder.

The one symptom common to all is pain during urination; this varies in degree and character.

Careful examination by direct inspection or with the endoscope will permit the physician to locate the exact seat of the disease with little difficulty.

Urethral caruncle is a bright red growth (an angioma) like a cockscomb, attached to the lower margin of the urethral orifice varying in size from a pinhead to that of a large pea. It causes exquisite pain during urination and often prohibits coitus.

Excision or galvano-puncture affords the best means of removal. Either operation may be done under cocaine, 10 per cent. being necessary for successful anesthesia. Unless the excision be done with great care a painful ulcer on the floor of the urethra is substituted for the tumor. Should this occur, weekly applications of silver nitrate, 10 grains to the ounce, will keep the patient comfortable.

Infection of Skene's glands is always of gonorrheal origin. These little tubules are found, one on each side near the floor of the urethra beneath the mucous membrane and extending into the muscular walls. Their location and construction tend to make them pest holes in specific infection, the gonococcus remaining in them undisturbed awaiting its opportunity to re-infect the surrounding structures. Destruction of these tubules offers the only satisfactory treatment. A fine probe may be passed into the gland and the tube slit up with a narrow bladed bistoury, when the infected tract has been thus exposed the fine point of a Paquelin should be run along the depth of the wound. The writer has used nitrate of silver fused to the point of a very fine probe, which after cocainization was passed along the tube to its full depth. No recurrence has occurred in these cases.

Prolapse of the urethral mucous membrane is rare and is most often found in strumous children. It hardly warrants discussion. The diagnosis may be made by inspection. The sensitiveness may be relieved with weak solutions of silver nitrate or cocaine after which reposition may be tried in recent cases. This failing one of the two operative procedures may be elected, *i. e.*, excision and suture or linear cauterization with a very fine pointed Paquelin.

The urethral polyp is an angiomatous neoplasm very similar to the caruncle already described but usually situated further back on the floor of the canal. The pain is not so severe as when

the growth is at the meatus. Its removal may be accomplished with a polypus snare.

Urethritis in women is quite common. Gonorrhea and irritation from foreign bodies are the usual causes. The former rightly deserves first place as the infection lingers in the urethra after it has disappeared from every other part of the genito-urinary tract. The symptoms complained of during the acute stage are burning and frequent urination occasionally accompanied by a discharge of blood. The diagnosis may be made by inspection or by milking the urethra from above downward when a little purulent or sanguino-purulent fluid will appear at the external orifice. The presence of gonococci in the secretion will settle the question of diagnosis. In the subacute and chronic forms the subjective symptoms are diminished or absent, but a hyperplasia may be felt along the urethra and with the endoscope the mucous membrane will be seen to be red, swollen and edematous; linear ulcers exhibiting a yellowish area of necrosis are not uncommon. The anterior and posterior thirds of the canal are the favorite localities for these changes.

Kelly makes two forms of chronic urethritis, *i. e.*, diffuse and circumscribed. The former is marked by small abscesses involving Skene's glands and by a diffuse chronic swelling of the anterior urethra. When the endoscope is passed the vessels appear deeply injected and the mucosa has a livid color, with here and there slate colored patches.

The circumscribed form presents patches of deeply reddened mucosa containing groups of yellow spots. These patches are generally found in either the anterior or posterior thirds of the canal.

No local treatment is needed during the acute stage. Urinary antiseptics, as salol, santal, ichthyol, and the alkaline diuretics help to make the patient comfortable. Some cases are so severe as to necessitate rest in bed and sedatives by the rectum. Iodoform or ichthyol bougies seem to have some beneficial effects. In the chronic form direct applications of argentic nitrate in strengths of from 3 to 5 per cent. twice a week will afford the desired cure.

Skene's glands must have the closest attention, as already referred to. Ichthyol is the only drug, besides the silver preparations, which deserves endorsement; it may be applied directly to the mucous membrane in strengths of 1 to 5 on an applicator

wrapped with cotton. The fenestrated endoscope facilitates the making of these applications.

Fissure at the neck of the bladder is a condition often overlooked by the practitioner and treated by urinary antiseptics and irrigations until the patient or the physician gets discouraged. An endoscopic examination will expose a longitudinal crack or fissure in the mucous membrane, about two-thirds of which is situated in the urethra and its upper end extending into the bladder. When the fissure is spread apart a linear ulcer with a yellowish-gray base and inflamed edges is disclosed. The pain caused by this lesion is severe and continuous, constant desire to urinate, exquisite pain with the act and tenesmus following it. To cure this condition is no easy matter. After cocainizing the meatus and bladder I have gradually dilated the urethra from 14 to 16 mm., so that a No. 14 fenestrated speculum could be passed, and arranged in such a position that the ulcer would appear on the stretch within the window. With the fissure thus exposed the base is carefully dried and cocainized, and then fused silver nitrate on a fine probe drawn through the full length of the wound. Several séances may be necessary to effect a cure, but relief will always follow from the first treatment.

Cystitis.—Infection is the true cause of every case of cystitis, but while infection is universally admitted to be the cause of cystitis, it has been proven by experiments upon animals that alone, without a predisposing cause, it cannot set up an inflammation. These predisposing causes are traumatism from the catheter, over-distention, childbirth, stone, benign and malignant neoplasms, irritating drugs, pelvic congestion, scanty and irritating urine, all of which tend to lower the resisting power of the vesical mucous membrane.

Clinically we recognize three forms of cystitis, *i. e.*, diffuse circumscribed and scattered, each referring to the area of mucous membrane involved. Trigonitis and peri-urethral or trachelocystitis may be classed as circumscribed and are the most common varieties.

Frequent and painful urination, with tenesmus following the act, are the symptoms complained of by the patient suffering from cystitis.

The diagnosis is made upon the history, urinary examination, and direct inspection of the vesical mucous membrane.

Local measures should have no place in the management of cystitis during the acute stage, but as soon as the activity of the

inflammation has subsided, topical applications to the diseased area will bring about prompt relief as compared with the old methods of irrigation, etc. Nitrate of silver and ichthyol locally combined with the internal administration of salol, santal, and the alkalies, particularly the benzoate of soda, if much pus be present make up the framework of bladder therapeutics.

Vesical washing is only of value when the inflammation is of the diffuse form—permanganate, salicylate of soda and boric acid are the irrigants of preference. Weak silver solutions are occasionally demanded in the presence of large amounts of pus and when the general vesical pain is severe.

When the inflammation is patchy or scattered, direct topical applications deserve endorsement and may be made through an 8 or 10 mm. speculum with comparative ease. The tendency of the inflamed bladder is to contract, particularly so if the disease has persisted for a length of time. No treatment save vesical massage will relieve this condition and the intense suffering which accompanies it. The writer has employed the vesical balloon after the method of Clarke with no little success in this class of cases. Before taking up methods of examination, I desire to call your attention to hyperemia of the trigone as the most frequent cause of irritable bladder in the presence of normal urine.

Methods of examination: Urinary: Cystoscopic. Preferable postures for cystoscopy: elevated dorsal, knee-chest, and exaggerated Sims'. Patient should empty bladder, residual urine removed by catheter, urethra dilated, cylindrical speculum introduced, cotton applicators to remove remaining urine; examine with reflected light. It is well to allow the patient to gradually assume the recumbent posture before the cystoscope be withdrawn, in order to expel air.

Rectal examination: Enema and defecation one hour before examination. Inspection: digital eversion and proctoscopic.

LOCAL APPLICATIONS IN OFFICE—GYNECOLOGY.

BY WILLIAM P. POOL, M.D.

The more perfect our understanding of gynecological pathology, the more evident becomes the fact that local applications in pelvic disease are of very limited utility.

Of the many medicinal agents employed in this manner some few are of known value, and some will bear further investiga-

tion, but the majority have little to recommend them save their time-honored use. In superficial inflammations of the vulva, vagina, or cervix, where direct application to the seat of disease may be made, antiseptics and astringents are of undoubted service, but in deeper seated lesions of the uterus and adnexa, the local use of drugs does not so often give flattering results. Tampons being the most usual vehicle for medicinal applications, it is probably true that favorable results are frequently ascribed to drugs that are in reality due to the support furnished by the former.

The classes of cases most benefited by local treatment are vulvitis, vaginitis, and cervical endometritis, while certain preparations do exert analgesic and antiphlogistic influence upon simple inflammations of the tubes and ovaries.

The method of making local applications varies somewhat according to the nature of the lesion. When the vagina is the objective point the patient is best treated in Sims' position in which a Cleveland self-retaining speculum may be used in the absence of a nurse or assistant. With the aid of a depressor every part of the vagina may thus be exposed. This position is perhaps also better for making applications to the vaginal vault, but for treatment of the uterus the unaided operator may find the dorsal position and the bivalve speculum or posterior retractor more convenient. It is essential that the medicinal agent shall be applied directly to, or as near as possible to the diseased area, and to this end the vaginal walls should be well retracted, and the mucosa thoroughly cleansed of all secretions. If these are particularly viscid or difficult to remove, it is well to mop the vagina with hydrogen dioxid. The application is then made by means of a swab or tampon. A tampon may be introduced without the aid of a speculum by retracting the posterior wall with the middle and index fingers of the left hand, but this deprives the operator of a view of the part he is treating and is to be condemned. Tampons as medicine carriers are best made of ordinary cotton. Absorbent cotton not only soaks up and retains the medication, but also soon becomes saturated with the vaginal secretions and rolls into a hard ball, which is easily displaced.

Churchill's tincture of iodine is probably the most common drug used in office treatment, and its antiseptic and irritant properties render it useful in a variety of complaints. In ovaritis or ovarian neuralgia a few applications in the vaginal vault, especially if accompanied by proper tamponade, will give relief of

pain and promote healing. Applied directly to inflammations of the vagina and cervix, it is a useful antiseptic and stimulant. It cannot be said to have any specific action upon the endometrium, although it has been recommended for intra-uterine treatment in chronic endometritis. For this purpose an applicator syringe should be used, by means of which a weak solution of iodine is carried into the uterus as far as the fundus and allowed to remain there. Other agents, such as carbolic acid or nitrate of silver may be used in a similar manner, but it is doubtful if such treatment is beneficial, while on the contrary it is often dangerous when unaccompanied by the operation of dilation and curettage.

In cervical endometritis with erosion and ectropion a valuable application is lactic acid, U. S. P. The cervix must first be cleansed of secretions with a cotton swab, or if there be a quantity of viscid mucus, by means of a mucus suction syringe. A thinly wrapped applicator is then saturated with the acid and carried into the cervix as far as the internal os, and the cervical endometrium and the eroded portion are thoroughly painted. A boro-glycerid tampon may then be placed against the cervix and allowed to remain twenty-four hours. This treatment should be carried out three times a week, and in simple inflammation the results are usually most satisfactory. The first indication of improvement is a decrease in the mucous discharge and in the area of erosion, which is followed by a gradual disappearance of all signs of inflammation and its accompanying symptoms.

Nitrate of silver in solutions of varying strength is useful in the treatment of superficial affections of the vulva and vagina, and also in erosion of the cervix. Its virtue consists in the fact that it is an escharotic that does not burn deeply or destroy tissue to any great extent. It is probably the best local remedy for gonorrheal vaginitis, and in this disease may be used at the strength of one dram to the ounce and swabbed freely upon the vaginal mucosa. Its application in diseases of the bladder and urethra are mentioned in another paper.

A solution of ichthyol in glycerine of a strength of ten to twenty per cent. is one of the best local remedies we have in hyperemic conditions of the tubes and ovaries, or in simple and localized inflammations of the pelvic peritoneum. Ichthyol is mildly irritant and possesses decided analgesic properties which counteract the pain caused by the dehydrating and depleting action of glycerin. The latter, by causing a free serous discharge from the tissues, improves circulation and promotes resolution.

Ichthyol is also said to cause the absorption of adhesions. Its peculiar odor and color are objections to its use, and a substitute for this drug has been offered in thyol, which, it is claimed, is not only without the disagreeable features of ichthyol, but also possesses in a greater degree the virtues of the latter. Thyol is practically odorless, and being soluble in water its stains are easily removed. It also is used in combination with glycerin and is applied to the affected part by means of a tampon which may be allowed to remain twenty-four to forty-eight hours.

In relaxed and atonic conditions of the vagina accompanied by profuse leucorrhœa, or in subinvolution of the uterus with chronic catarrh of the endometrium, local astringents are indicated. Boroglycerid or glycerole of tannin may be used.

In the great majority of cases, office applications should be supplemented in the intervals of treatment by the hot douche, to which may be added a mild antiseptic or astringent such as boric acid or sulphate of zinc. However, the temperature of the douche and the method of using it are of the principal importance. Normal salt solution at temperature of 120° F., given slowly, with the patient in the recumbent position, as a rule answers all requirements..

Topical applications are for the most part merely palliative and do not strike at the cause of the lesion. When inflammatory changes have gone beyond the acute stage, when adhesions or other organic changes have taken place, or when, as is so often the case, pelvic disorders are dependent upon general conditions, the local application of medicinal agents cannot be expected to be of more benefit in gynecology than in any other department of surgery.

FIELD FOR PESSARY TREATMENT.

BY CHARLES JEWETT, M.D.

The pessary still holds a place in the treatment of uterine diseases. Its field, however, is a limited one and is restricted mainly to retrodisplacements and to certain cases of prolapse.

One of the most important indications for the pessary is uterine retroversion during the post-partum period. Retro-displacement of the uterus in the third or fourth week after delivery is a not uncommon occurrence. Neglected, the result is a permanent displacement. If the uterus is repositied and maintained in a normal position by a properly fitting pessary till involution is

complete it is almost certain to remain so. The length of time during which the instrument must be worn is usually 2 or 3 months.

In retroversion of the gravid uterus, in the absence of adhesions, or even with slight adhesions of the appendages, manual reposition is possible up to two and a half months. In such cases a pessary may be used to advantage till the end of the third month from which time recurrence of the malposition is impossible. Often a pregnancy may thus be saved which would otherwise be lost, spontaneous abortion usually resulting before the fourth month if the fundus remains in the hollow of the sacrum.

The pessary, too, frequently relieves the pernicious vomiting which is usual in persistent retrodisplacement of the pregnant uterus.

Retroversion of the non-gravid uterus giving rise to symptoms, in the absence of complications, is exceedingly rare. When the uterus is replaceable, even though the appendages be not entirely healthy, the pessary generally affords a symptomatic cure. A well-fitting, hard rubber pessary is worn without discomfort, the symptoms are wholly relieved and frequently the woman regains her former health. The pelvic organs sometimes resume in part or wholly their normal condition and exceptionally an anatomical cure is possible after a few months.

In many cases of fibroid uterus the pressure effects may be relieved by the use of a ring or other pessary to hold the uterus up. In uncomplicated prolapse support by a pessary is sometimes effective.

The pessary is contraindicated in inflammation of the appendages or of the pelvic peritoneum and in all cases in which it causes pain. In marked retroflexion it is unsatisfactory and generally injurious.

The most generally useful instrument is the hard rubber pessary of the Albert Smith pattern. The use of soft rubber pessaries is seldom permissible. Soft rubber is absorbent and can not be kept clean. In the vagina it soon becomes both a mechanical and a chemical irritant, abrading the surfaces of contact and giving rise to offensive and ichorous discharges.

Finally, to use the pessary successfully in the treatment of uterine displacements requires a certain degree of mechanical skill and ingenuity. Much, too, depends upon the maintenance of cleanliness and upon keeping the patient under observation.

THE BROOKLYN SURGICAL SOCIETY.

JAMES P. WARBASSE, M.D., *Editor*.

Regular Meeting, May 3, 1900.

The President, Dr. Walter C. Wood, in the Chair.

FOREIGN BODY IN THE KNEE SIMULATING TUBERCULAR DISEASE.

DR. B. B. MOSHER presented a patient 22 years old who had had trouble with his right knee for six years and which had been diagnosed at the beginning as tubercular knee-joint disease and treated as such by one of the best known surgeons of Europe, by means of plaster of Paris, splints, braces, etc. Creosote pills had been prescribed and taken up to the time when he first consulted the speaker, which was three years ago. At the end of the first three years of treatment, the various appliances had been discontinued, and he had been pronounced cured, but advised the constant use of creosote. During the remaining three years, he was frequently "laid up," but after resting in bed a few days he would be able to go about again, but each succeeding attack left the knee worse. When he consulted the speaker, November 1st, 1896, he was unable to go about at all. His last attack had confined him to the bed three weeks. He was anemic, emaciated, at times hectic, no appetite, temperature in the evening $101\frac{1}{2}$, sub-normal in the morning, and he complained of his right knee. There was lameness, stiffness, pain, worse at night and increased on motion, local tenderness, especially over the condyles, change in color, white and shining except just above the tubercle of the inner tuberosity, where there was a small bluish fluctuating spot. There seemed to be fluctuation over the entire knee. There was pus by aspiration. These symptoms together with the peculiar contour of the knee, and the muscular atrophy above and below, induced the reporter to confirm the diagnosis of tubercular knee-joint disease. As the patient was gradually growing worse, the speaker decided to resort to operative measures, so on November 8, 1896, proceeded under ether anesthesia somewhat in the following manner: An incision about two inches in length was made through this darkened area just above the internal tuberosity of the femur, allowing the escape of about six ounces of creamy pus which had floating in it a number of black specks about the size of a pin-

head. Introducing the finger into the pus cavity, it came in contact with a hard substance which, after removal, proved to be a hard thorn about an inch in length, and these hard specks referred to were evidently bark from the thorn. Careful examination showed that the joint was not involved, but that the abscess cavity was long and narrow, leading across above the joint under the tendon of the quadriceps muscle, thence turning down the outer side of the knee close to the capsule of the joint, finally terminating in a mere sinus. A counter opening was made; the sinus and abscess cavity were curetted and irrigated, and healed in about three weeks.

An interesting point is, that when the patient was shown the thorn, he readily remembered that about six weeks before he began treatment, that is, six years previous to the operation, he had fallen into a hedge and stuck a thorn into the knee, and referred to a scar located just at the outer side of the insertion of the patellar ligament into the head of the tibia. The thorn had evidently entered at the point of the scar and slowly worked its way up along the outer side of the ligamentum patellæ, along the outer side close to the capsule of the joint, thence in under the tendon of the quadriceps muscles, across to a point just above the adductor tubercle, causing symptoms so closely resembling those of tubercular knee-joint disease. Now over four years after operation the patient reports well—the muscles and function of the knee are restored.

DOUBLE CHARCOT'S KNEE-JOINT.

DR. H. B. DELATOUR presented a case of double knee-joint disease which was of interest because he was not just sure what the diagnosis should be. This man in 1892, eight years ago, received an injury to his right leg. He was treated by Dr. Rand at that time. He had a compound fracture of the leg, the result of a severe twisting from a rope getting around the leg. Five years ago he first noticed that his right knee began to swell and to give him some pain. Dr. Delatour had tapped the knee-joint at that time and removed considerable fluid. This gave relief for some three years and then the joint began to swell again and at the same time a deformity began to develop. About six months ago the knee-joint was much enlarged, but no particular tenderness. The reporter had explored the joint and found in the place of the internal cartilage a cartilaginous, almost bony mass, similar in shape, about an inch or inch and a half in thickness. At about

this time the left leg began to develop the same conditions as were present in the right; and since then the deformity has increased very materially. His strength is much reduced and at times he has excruciating pains both in the knee-joints and the hip-joints.

The speaker desired that the members examine the case and give any information they could as to the diagnosis, prognosis or treatment. The patient was 51 years of age, and gave a history of syphilis.

Discussion.

DR. W. C. WOOD said that though he had never seen a case of Charcot's disease involving both knee-joints, in view of the specific history, it seemed to him that that was the condition present in this case.

He said that the left knee follows out the type of Charcot's joint more than any other that he was acquainted with; but he had never seen a double lesion of that character. The history of syphilis is also of course characteristic of locomotor ataxia and almost a *sine qua non*.

DR. C. H. GOODRICH observed that there had been cases of double Charcot's disease reported.

DR. WOOD added that he had seen some six cases of Charcot's knee-joint. He believed there is a difference in the rate of rapidity with which these degenerative arthropathic conditions proceed. He had seen cases which went as rapidly as acute tuberculosis of the joint, and others which could not be diagnosed from arthritis deformans or osteo-arthritis as commonly described in the English works. The gross lesion in either case is practically the same, with possibly the degenerative process a little more marked in the tabes type of arthritis than in *ostéitis* proper. The making of a diagnosis from a pathological standpoint between the two conditions he believed to be impossible.

DR. DELATOUR said that in his judgment arthritis deformans could be excluded. The only diagnosis he had in mind was Charcot's joint, and he did not feel satisfied of that. While the patient is satisfied himself that he had straight syphilis, the history he gives is not positive. He had had no secondary eruption, and he had been on mixed treatment and on the iodid now for some time and they had no effect on the condition whatever. The leg pains had not come on in crisis; they had been quite constant until recently.

CHOLEDOCHOTOMY.

DR. A. T. BRISTOW reported a case as follows:

In the early part of April he saw in consultation the mother of a physician. She was a woman of 65 years of age. Sixteen years before she had suffered from repeated attacks of renal colic on the left side. These disappeared and she remained well until six years ago when she commenced to have attacks of pain which began in the left hypochondrium radiating in all directions, but especially toward the thorax and bladder. With these attacks occurred vomiting and scanty and frequent micturition. The paroxysms recurred every three or four weeks and lasted a few days. During the past three years they had been less frequent and less severe. During the past six months she had suffered from sixteen attacks similar to those just described, but with very severe vomiting and a jaundice which had disappeared between the attacks until the last, since which time it had been persistent and had become most intense. The itching had been annoying, preventing her from sleep except under the influence of morphine. She had lost strength and flesh. When Dr. Bristow saw her all the tissues were deeply bile-stained and the urine was of a deep saffron color. Examination revealed a liver of moderate size, but nothing resembling a tumor was discoverable. Much tenderness was elicited by pressure over the epigastrium. He made a diagnosis of stone impacted in the common bile duct, and was requested by the patient to make an attempt to relieve her as she said her life was not worth living in her present condition. She was transferred to St. John's Hospital, and for a few days before operation was put upon chlorid of calcium for the purpose of minimizing the risks of hemorrhage which confront all jaundiced patients and frequently cause a fatal termination. As she had a history of motor aphasia a few years previous from which however she soon recovered, and as moreover her urine showed a large percentage of albumin with granular and hyaline casts he determined to use nitrous oxid as the anesthetic, which was accordingly administered by Dr. Mapp.

An incision over the right rectus muscle was made, the muscular fibers pushed to one side and the abdomen opened. After some search the operator discovered a rather deeply placed gall-bladder, much shrunken and covered with adherent omentum. On incision he discovered a gall-stone about the size of a chestnut. He then passed two fingers into the foramen of Winslow, and, an raising the gastro-hepatic omentum in an upward direction, soon located a hard mass near the duodenum. A careful dissection was done

until the mass was reached and exposed by the knife when it proved to be a large stone impacted in the common duct close to the duodenum. It was very firmly lodged and was gotten out with considerable difficulty. Sharp hemorrhage occurred from the upper portion of the wound from which it was extruded. A clamp was placed on the point of bleeding and left there. As the wound in the duct was through a mass of what looked like granulation tissue he did not attempt to make a complete closure although he had the Halsted hammers ready. He passed two or three sutures across the cut in the gastro-hepatic omentum and then surrounded the wound in the duct with strips of gauze which led to the surface. No attempt was made to put a ligature on the point secured by the clamp as he was not sure whether he had a wound in the portal vein to deal with or in a branch of the hepatic artery, the nitrous oxid rendering it impossible to make a distinction between venous and arterial blood. The clamp was left in situ and incorporated in the dressings. The patient recovered from the operation, which occupied an hour and twenty minutes, with no evidences of shock. She did not vomit at all until the following day when hematemesis occurred, and for twenty-four hours at intervals of perhaps half an hour she vomited up altered blood, which came evidently from the mucous lining of the stomach. Her kidneys secreted but four ounces of urine in the same time. Saline solution was injected twice under each breast with good results, and the urinary secretion became of more abundance though of low specific gravity and containing much albumin. At the end of forty-eight hours the primary dressings were removed and the clamp taken out. No hemorrhage followed. The dressings were profusely stained with bile, which now began to disappear from the urine. The general condition of the patient had improved, the vomiting stopped, and she began to take quite freely of nourishment. The next day the gauze packing was removed, and fresh strips led down to the duct. Bile continued to be discharged in large quantities so that the outside dressings had to be changed twice a day. On the fifth day after the operation the patient was observed to be growing drowsy. This increased to a state of coma and the patient died on the sixth day after operation. The autopsy showed much degenerated kidneys, of which the left contained a stone in the pelvis. The wound of operation was clean and the duct pervious. There was no post operative hemorrhage of moment. It was a disappointment to have conducted this case

so nearly to a successful issue, but the condition of the kidney which was shown to the Society explained her coma.

The stone in the duct was very large and very firmly imbedded. It did not seem possible that any bile at all could have passed into the intestines for many weeks, and yet the history of the persistent jaundice was less than ten days. The occurrence of hematemesis after the operation has been noted by Richardson of Boston, but had not occurred to Halsted in any of the cases which he has recently reported in the *Johns Hopkins Bulletin*. Dr. Bristow attributed it to the pressure of the packing on the portal vein. As the dressings became saturated with bile they became more compact and took up less space, and as the pressure was relieved the hematemesis ceased.

TUBAL PREGNANCY, REMOVAL OF AMNIOTIC SAC AND FETUS INTACT.

DR. J. P. WARBASSE presented a specimen which he had removed from a woman who came into the Methodist Episcopal Hospital two days before with the following history: Her menstrual history had been normal; she was a married woman of 40, and had had two children, the youngest of which had been born nine years ago. She had enjoyed good health, and menstruation had continued perfectly normal up until two months ago, when she skipped one period. She then menstruated the month after that, which was the period preceding her entrance to the hospital. That was two weeks before her entrance to the hospital, and that menstruation had been normal and uneventful.

Four years ago she had suffered from an attack of abdominal pain, the cause of which she never learned, but was confined in a hospital for a month with pain in the lower part of the abdomen. She had a recurrence of this same condition four months ago, and was again confined to bed for several weeks with pain in the lower abdominal region and exquisite tenderness associated with constipation. Three days before her admission to the hospital she had again been seized with this same sort of pain in the lower abdominal region, and on the day preceding her admission to the hospital, which was three days ago, she had an especially severe attack of this peculiar pain.

Upon admission to the hospital her temperature and pulse rate were normal; and there was this tenderness, which she said was the same as she had experienced on the two previous occasions, over the lower part of the abdomen. There was some slight rigid-

ity of the abdominal muscles, and the bimanual examination showed the uterus but slightly enlarged and adherent to a mass lying behind and to the left of that organ. This mass was soft and fluctuating and had very much the feel of an ovarian cyst, which had become adherent to the back of the broad ligament and the posterior aspect of the uterus.

Without having made a positive diagnosis, having discovered this mass behind the uterus, associated with pain, and in the presence of normal temperature, the patient having menstruated naturally at the previous period, the speaker proceeded to curette the uterus as was his custom previous to opening the abdomen in cases in which some condition requiring hysterectomy may be found. During the process of curetting the anesthetist announced that the patient's pulse was becoming very rapid. The operation was proceeded with, and having finished the curetting, the abdomen was opened in the median line. A gush of bright red blood appeared as soon as the peritoneum was incised. This blood welled up from every direction; masses of fresh clot and bright red blood from above and below. Upon again inquiring of the anesthetist about the condition of the patient's heart, the operator was informed that her pulse was scarcely perceptible, fluttering, and somewhere about 175. Immediately the patient was placed in the Trendelenburg position and he proceeded to clean out the blood-clots and quickly discovered the source of the hemorrhage, which was from the placenta and placental attachments of an ectopic gestation. The bleeding was taking place from this tearing loose of these placental tissues from this amniotic sac. From this whole torn surface a rapid bleeding was going on. An unruptured amniotic sac was found in the abdominal cavity almost entirely separated from the placental mass. The operation of the curettement and the manipulation of the uterus had evidently caused this rupture of the structures which surrounded it, for the blood in the abdomen was fresh and in great abundance. The chief bleeding seemed to come from a mass represented by the ruptured tube and the placenta, lying adherent posterior to the broad ligament. The tube was ligated, cut away and removed with the placental detritus, after which, bleeding from the denuded area was controlled by pressure. The blood was rapidly cleaned out of the abdomen; and during the progress of the operation the patient was given 16 ounces of saline solution under each breast. Immediately upon finishing the operation the patient was given 42 ounces of saline fluid in the veins of the arm, making in all an injection and in-

fusion of 74 ounces of saline fluid. The pulse rate steadily came down from 180, at night her pulse rate was 100, and on the following day, the day of reporting, she was in good condition. She had had a free movement of the bowels and promised to do well. The fetus was a perfectly preserved specimen of six or eight weeks' development, and was contained in an unruptured amniotic sac.

Note: This patient has made a smooth and uneventful recovery.

Discussion.

DR. M. FIGUEIRA said that in regard to Dr. Warbasse's case of ectopic gestation it exemplified very well indeed the precept that Prof. Thomas used to impress on our minds of never curetting when there was any suspicious growth round about the uterus. He used to say, and to impress on us very forcibly indeed the danger of curetting when any suspicious tumor, whether inflammatory or not was connected with the uterus, because of the danger of the accident that happened in Dr. Warbasse's case. You may curette with impunity ninety-nine times, but the hundredth time you will learn a lesson you will never forget.

DR. W. MADDREN wished to ask Dr. Warbasse as to whether he was able to state whether the case was a tubal pregnancy, an ectopic tubal gestation; and if he had any knowledge as to when the fetus escaped from the tube, or if he regarded it as an abdominal pregnancy.

DR. HENRY WALLACE said that he wished to ask somewhat the same question, as to what form of extra-uterine pregnancy this was, whether tubal or ovarian or interstitial, and also what the condition of the ovary was on the side on which the disease was.

DR. MADDREN also asked whether the Doctor found it necessary to ligate the vessels at the ovarian end of the broad ligament to arrest the hemorrhage or simply at the uterine end of the tube.

DR. WARBASSE said, concerning Dr. Figueira's allusion to our old instructor, Prof. Thomas, that that worthy gentleman was then the exponent of the old gynecology, which is a different thing from modern surgery. He was quite sure that Dr. Figueira did not mean that we should abstain from doing a curetting as a preliminary part of an operation which we propose to complete by opening the abdomen and attacking some growth connected with the uterus. It was the speaker's invariable practice as well as the practice of the other gentlemen connected with the same hospital,

to do a curetting always before opening the abdomen to attack a growth connected with the uterus. Experience has taught that we never know just what we shall find, and in many cases we remove the uterus when we originally had not planned to do so. Moreover, this woman presented the signs of endometritis: there was a considerable amount of fungoid material, which he presumed, however, belonged more properly to the peculiar hypertrophy of the mucous membrane that takes place in connection with an ectopic gestation. However, he did curette the uterus in this case. He should do precisely the same in a similar case. He was ready to go ahead with the abdominal operation, and prepared for any accident that might arise.

As to the condition of the ovary in this case, Dr. Warbasse further said that the ovary lay to the other side and independent of the growth. The tube was attached to the placenta and involved in the placental mass, and the only ligation that was required was to ligate the broad ligament attachments of the tube, which were ligated in sections. The original location of this pregnancy was within the tube, and the attack of pain which this woman had suffered a month before was in all probability associated with the tubal pregnancy.

PERFORATING TUBERCULAR ULCER OF THE APPENDIX VERMIFORMIS.

DR. J. P. WARBASSE presented a vermiform appendix from a patient on whom he had operated a few days before. The patient was a man who had been in the medical service of the Methodist Episcopal Hospital for several days suffering with a general tuberculosis. He had had a pulmonary tuberculosis involving both of his lungs, the symptoms of tuberculosis of the mucous membrane of the intestine, a tubercular laryngitis, and a tuberculous ulcer on his tongue, the tuberculous character of which ulcer had been discovered by microscopic examination. This man was in a condition of extreme inanition. He had gotten up on to his feet when suddenly he was seized with pain in the lower part of the abdomen. He had extreme prostration, and his abdomen rapidly distended. Dr. Warbasse saw him a few hours after this occurrence and found the abdominal muscles contracted and the patient in a state of extreme prostration. The abdominal tenderness was over the right iliac region, in just the region we are accustomed to discover the tenderness of appendicitis. The rigidity, however, involved the whole of the abdomen. The speaker,

having made a provisional diagnosis of perforated tubercular ulcer of the intestine, opened the abdomen, and encountered a flow of purulent serum. This having escaped and been sponged away, the intestines which presented were found matted together by old adhesions. Upon separating these adhesions down through toward the pelvis, they were found binding the lower coils of the ileum to the ascending colon and caput coli and to the lateral aspect of the abdominal wall. Among these folds of adherent intestines old pus was discovered, communicating with various pus channels walled off by adhesions, extending down into the pelvis and laterally into the flanks and both iliac regions, showing the presence of an old suppurative peritonitis. Then proceeding to discover the cause of this old suppurative peritonitis, the operator discovered the appendix lying about in the middle of the abdomen surrounded by adhesions, in one of these old pockets of pus. The appendix was ligated and removed, and all of the pus collections that could be found were sponged dry. The cause of the acute symptoms was found to have been the rupture of one of these abscesses into the unsoiled peritoneum. There were all the evidences that these collections were of no recent date.

The appendix was found to be the seat of a typical tuberculous ulcer, beginning in the mucosa and finally perforating the wall of the organ. The original infection had evidently come from this perforation which had taken place many days before and was the cause of the multiple collections of pus. Abundant drainage was applied and the wound closed. The man rallied well from the operation. There was no abdominal distention on the next day and his abdominal tenderness had quite subsided; on the following day he began to develop a pronounced exacerbation of his pulmonary disturbance, and died from post-operative pneumonia.

LONG ISLAND MEDICAL SOCIETY.

E. E. CORNWALL, M.D., EDITOR.

The 97th Regular Meeting, Tuesday, November 6, 1900.

The President, DR. A. C. BRUSH, was in the Chair.

The scientific program was as follows:

Four Cases of Apparently Cured Epilepsy.

By Dr. A. C. Brush.

The report of these cases was preceded by a comprehensive though brief résumé of our present knowledge of epilepsy and the best methods of its treatment.

Case I.—Female, 15. Admitted to Brooklyn City Dispensary February 25, 1895. Father dead, said to have been intemperate. Personal history negative up to three weeks before, when she heard noises like the sound of bells and voices for several minutes, then uttered a loud cry, became unconscious, had general tonic, followed by clonic spasms and coma, after which she had a headache.

On February 15th her menstruation appeared for the first time, and she had a similar convulsion. Examination showed good nutrition and development, eyes highly astigmatic, constipation, and indigestion. Bromids were prescribed, and amyl nitrite to be inhaled during the aura; also, a rhubarb and soda mixture; and for the astigmatism, glasses were prescribed by Dr. J. S. Wood. During the next seven months the fits occurred two or three times a week, and the patient became anemic, for which iron and arsenic were given. Then the gastro-intestinal trouble improved so that the convulsions occurred only once a month, and assumed the petit-mal type. By the end of the year 1896 only an occasional aura was evident, with headache and vertigo, and since that time to the present there have been no symptoms. During this whole period general hygienic measures have been carefully carried out, and the patient has taken a pill containing pepsin, pancreatin, and ox-gall.

Case II.—Female, 22. Admitted to Brooklyn Eye and Ear Hospital December 6, 1895. Since the age of 14, when she had a fright, which she considered the cause of her trouble, she has had once or twice a month paroxysms, characterized by a cry,

sudden loss of consciousness, general tonic and clonic spasms in which the tongue is bitten, followed by coma and headache. On admission she showed evidence of poor nutrition and gave symptoms of dyspepsia and alternating diarrhea and constipation. Bromids were given, and special attention paid to the digestive tract. Under this treatment her abdominal troubles and her convulsions both gradually diminished, and at the end of a year disappeared, and have not since returned.

Case III.—Male. Father suffered from diabetes for several years before patient's birth. In January, 1897, he suddenly became speechless, and then became unconscious, and general tonic, followed by clonic convulsions. A similar convulsion occurred in March, in which he bit his tongue and dislocated his jaw. Before each convulsion his breath smelled of sulphuretted hydrogen, and after each his bowels moved. Examination, May 4, 1897, showed muscular development poor, penis small, and prepuce long and contracted. The patient was placed on a vegetable diet, bromids and eupeptics given, and circumcision performed. During each of the next three months two or three convulsions occurred, but after this they gradually diminished in frequency and severity until March, 1898, since when they have ceased entirely.

Case IV.—Male, 15. Admitted to the Brooklyn Eye and Ear Hospital, November 24, 1899. Several years ago he received a severe blow on the head, causing coma and convulsions. One year later he began to have sudden attacks of brief losses of consciousness, followed by sleep or irrational talking. They occurred about once a month, and after they began he did not do well in school. Examination showed long and contracted prepuce; otherwise negative. Bromids were given and circumcision done. The fits ceased immediately, and have not recurred.

Dr. Brush's paper was discussed by Drs. J. C. Hancock and E. E. Cornwall.

Dr. Hancock believed that errors of refraction often cause epilepsy, and thought that all cases of epilepsy should have their eyes examined.

Dr. Cornwall spoke of the relationship between epilepsy and the gouty diathesis, and thought that in any case of epilepsy the possibility of a gouty diathesis or gouty family history should be borne in mind, which, if found to exist, calls for special treatment.

Dr. Brush, in closing the discussion, said that it was only

in cases in which symptoms had ceased for four or five years that a cure could be considered as having taken place.

A Contribution to the Surgery of Varicose Veins of the Leg.

By Dr. W. F. Campbell.

This valuable paper of Dr. Campbell, in which he described a new and practical method of finding and tying the internal saphenous vein very high up, and in which he reported the results of many operations on the cadaver and on living subjects, with a larger percentage of successes, will be published elsewhere, so no further report of it is given here. It was discussed by Drs. W. E. Butler and W. S. Hubbard.

Presentation of a Specimen of Vesical Calculus.

By Dr. W. F. Campbell.

This specimen was a rare one. It was a mulberry calculus, rough and tuberculated, composed of calcium oxalate.

A Case of Fibrinous Rhinitis.

By Dr. W. C. Braislin.

Dr. Braislin prefaced his report of this case by a general account of fibrous rhinitis, which is a rare disease. He considered the disease a germ disease, but thought it a debatable question whether or not the germ is the Klebs-Loeffler bacillus. He thought it quite likely that the bacillus, when finally identified, would be found to be a germ similar to, but specially distinct from, the Klebs-Loeffler bacillus.

The patient, a female, 7 years old, was referred to Dr. Braislin by Dr. L. L. Nichols. For five days complete obstruction of the left side of the nose had existed. There was no fever and no pain. There was no history of exposure to diphtheria obtained, though there existed contemporary cases of diphtheria in the neighborhood.

On examination the nostril was found completely obstructed. It was dilated under cocaine, and an apparent foreign body was revealed, which came away in the grasp of the forceps, leaving a slightly oozing bloody surface; the procedure was not painful. The removed mass was about one inch and a quarter long by half an inch thick, fleshy, white, and semi-transparent. Its attachments were to the septum, floor of nose, and lower turbinated body. A large part of it was inclosed in a culture-tube and sent

to the laboratory for bacterial examination, but the report received was negative as to the presence of the Klebs-Loeffler bacillus. The bleeding points were touched with a strong solution of nitrate of silver. There was a slight recurrence of the membrane, but it rapidly disappeared. The patient also had adenoids, which were later removed.

Dr. Braislin's paper was discussed by Drs. B. W. Collins, H. A. Alderton, and W. S. Hubbard.

Dr. Collins had seen four cases of membranous rhinitis recover in forty-eight hours after removal of the membrane. He doubted if the disease was diphtheritic in origin.

Dr. Alderton thought that membranous rhinitis was sometimes specific and sometimes not; for the bacillus of Klebs-Loeffler was sometimes present and sometimes absent.

Dr. Hubbard thought that membranous rhinitis was apt to recur. He removed the membrane from the nose of a patient who had a similar attack ten years before.

Dr. Braislin, in closing the discussion, thought that predisposing causes to this disease existed, notably, deflected septum. He believed that recurrences were quite possible.

Presentation of a Case of Epithelioma of the Auricle.

By Dr. W. C. Braislin.

This case was of thirteen years' standing, and the disease had invaded nearly the whole of the auricle and some of the surrounding tissues. The treatment employed was palliative.

This case was discussed by Dr. W. F. Campbell, who thought that in a cancer of the auricle of such long standing as this, operation was not advisable. He stated as an axiom that in operations for cancer, the more local the disease is, the more radical should be the operation; for operations, where the disease is extensive, can only be palliative.

Some Things One Should Not Do in the Treatment of the More Common Ear Diseases.

By Dr. H. A. Alderton.

Dr. Alderton's advice was, briefly, as follows:

In suturing the auricle, suture the integument only, and not the cartilage, otherwise there is danger of necrosis of the cartilage.

A sebaceous cyst of the auricle should not be simply incised,

its sac should be dissected out or curetted and cauterized.

In eczema of the auricle or auditory canal, remember that water is bad, and do not instruct the patient to wash off the crusts with castile soap and water. If a purulent discharge from the middle ear necessitates syringing with an aqueous solution, see that the eczematous crusts are first removed with olive oil, and then anointed with an appropriate ointment. The auricle and canal should be thoroughly dried with absorbent cotton before application of oil or ointment.

If impacted cerumen is suspected, verify the suspicion by examination or the introduction of cotton on an applicator. Then syringe with plenty of hot 1-100 solution of carbolic acid in sterilized water. It may take some time to remove the plug, but do not give up and send the patient home with a prescription for ear drops; they often do harm; better keep at it and remove the wax at the first sitting. In syringing hold the auricle outwards, slightly backwards and upwards, so as to straighten the ear canal. From time to time try the canal with an applicator, or inspect to see if any cerumen is left, or rest occasionally to permit the plug to soften. After the ear is clean, dry thoroughly and protect with a little cotton in the orifice.

Never, unless you are a capable aurist, use an instrument to remove foreign bodies from the ear-canal, and then only as a last resort. Use the syringe. If that is not sufficient, send the case to an ear specialist.

Do not use leeches on any but robust patients.

In rupture of the drum membrane do not instill fluids into the ear-canal, nor syringe.

For earache do not prescribe anodyne ear drops, but try first the hot-water bag to affected ear, and if that is not enough, hot douches of sterilized or carbolized water. Always after such douching dry out the ear-canal. The douching may be used about once in two hours. If relief is not obtained in forty-eight hours, consult a specialist as to the advisability of incising the drum-membrane.

Do not use peroxid of hydrogen drops in acute abscesses of the middle ear.

In suppurative diseases of the middle ear do not prescribe ear drops to be used at home, except in conjunction with a previous thorough syringing and drying of the ear-canal: otherwise the remedy will not reach the affected part.

In threatening mastoiditis keep the patient at home or in bed.

Dr. Alderton's paper was discussed by Drs. E. E. Cornwall, W. C. Braislin, B. W. Collins, S. H. Lutz, and R. J. Morrison.

Dr. Cornwall spoke of the necessity of being persistent in irrigating for removal of impacted cerumen, and advocated the use of a blunt-nozzled syringe by those physicians who were not ear specialists, as less likely to injure the lining membrane of the ear-canal.

Dr. Braislin thought that in cases of furuncle of the ear, when the diagnosis from mastoiditis was clear, leeches gave great relief in addition to warm water, the ice-bag, etc.

Dr. Collins condemned the employment of instruments for the removal of foreign bodies from the ear-canal by physicians inexperienced in their use.

Dr. Morrison cited a case which was treated by a druggist with laudanum and olive-oil ear drops without success, but which rapidly recovered under simple irrigation with hot water. He thought that general practitioners should be very cautious in their treatment of ear diseases. He also cited a case of purulent inflammation of the ear treated by peroxid of hydrogen for ten days, which resulted in extensive burrowing of pus in the neck.

Dr. Lutz spoke of the frequency with which patients are brought to the ear specialist as a result of the unskilful use of instruments, and the prescription by druggists and others of the laity of kerosene and turpentine in diseases of the ear. He cited a case in which a glass bead had been shoved into the tympanic cavity and the drum of the ear nearly destroyed by the unskilful use of instruments in the hands of two physicians.

Dr. Alderton, in closing the discussion, said that he thought the best ear syringe was one of hard rubber of a capacity of one ounce. He disapproved of the use of leeches in furunculosis as contraindicated in that disease, and likely to introduce infection. He cited a case in which a needle, used to allay itching in the ear-canal, passed out of the control of the patient's fingers, traversed the middle ear and alimentary tract, and reappeared in the stools.

HISTORICAL DEPARTMENT.

APPRENTICES' LIBRARY.

In presenting to the readers of the JOURNAL a view of the Apprentices' Library building, it is with that pride known to collectors only. This is the first and only view of this building that the writer has ever seen. It was the first public building erected in the village of Brooklyn, on the corner of Henry and Cranberry streets. The association formed to erect this building was incorporated November 20, 1824, and the corner-stone was laid by General Lafayette, assisted by the Grand Lodge, F. & A. M., State of New York, on July 4, 1825. The lot on which it was built immediately adjoined the residence of Dr. Joseph H. Raymond's grandfather, Eliakim Raymond, 76 Cranberry street, and the family witnessed the laying of the corner-stone from the side windows. The structure was completed in May, 1827. Prof. Dana delivered the first lecture, and the library contained about 1,500 books. This building was sold to the city in 1836. With the assistance of Augustus Graham, the Society was reorganized, and in 1841 occupied the Brooklyn Lyceum building, Washington and Concord streets, the name being changed to Brooklyn Institute in 1843, at the present time known as the Brooklyn Institute of Arts and Sciences. The interest centered in this building from a medical standpoint is, that it was the first public building in which the Medical Society of the County of Kings held its meetings, from July, 1827, to July, 1837.

WILLIAM SCHROEDER, M.D.,
Secretary of the Historical Committee.

GUTHRIE RIDER WINDER, M.D.,

Dr. Winder was born in the city of Brooklyn, August 9, 1874, and died in the same city on January 25, 1901. His father, William Guthrie Winder, M.D., was a native of Thunderly, Essex County, England. He was Surgeon of H. M. Twelfth Royal Lancers, and served during the Crimean War, being connected with the hospital in which Florence Nightingale was a nurse. During the Civil War in this country he was one of the surgeons connected with the hospitals at Washington, D. C.



APPRENTICES' LIBRARY.



GUTHRIE RIDER WINDER, M.D.

The mother of the subject of our sketch was Julia Augusta de Forest, of Ulster County, New York, and is known as Sister Augusta, being one of the founders and first directresses of the Trained Christian Helpers.

Dr. G. R. Winder was educated at the Trinity School of New York, and studied medicine under the preceptorship of A. W. Catlin, M.D., of this city, graduating M.D. at the Long Island College Hospital in the class of 1898. During the Spanish War he was Surgeon-in-Charge of the National Red Cross Home for Soldiers, at Chapel Hill, N. J., entering upon the practice of medicine in this city in 1899. During the few years he practiced the healing art he was connected as physician to the Order of Trained Christian Helpers, Howard Colored Orphan Asylum, Bedford Dispensary, Waverly Avenue Dispensary, St. Phœbe's Mission, and St. John's Hospital. He was also examiner for the National Fraternal Society, and assistant to Dr. Charles Napier, Orthopedic Department, St. Mary's Hospital.

He was a member of the Medical Society of the County of Kings, Brooklyn Pathological Society, and Brooklyn Pediatric Society, and a member of St. John's Chapel, Church Charity Foundation.

Dr. Winder was married to Miss Jane Hood Smith, of Brooklyn, N. Y., on June 6, 1900.

WILLIAM SCHROEDER, M.D.,

Secretary Historical Committee.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

Dr. William A. Griffith, Grand Regent of the Royal Arcanum of New York State, presided over a large meeting of the organization which was held March 15th, in the Forty-seventh Regiment Armory, at which one thousand members were initiated. Dr. Robert J. Morrison was on the reception committee.

Dr. Henry H. Morton, who has been engaged the past two and a half years in writing a book on "Genito-Urinary Diseases and Syphilis," has made a contract with the F. A. Davis Company for its publication. The book, which will appear in the autumn, will be illustrated and contain about 350 pages. It is intended as a concise and practical account of the subject, with the especial view of aiding the practitioner in the diagnosis and treatment of this class of cases. From the doctor's large experience and knowledge of the subject the work should be of great value.

Dr. A. Nelson Bell is one of the thirty-five Brooklyn survivors of the Mexican war. He was a naval surgeon.

Dr. Nathan T. Beers, Jr., in addition to his other accomplishments, is now becoming famed for his artistic designing of book plates. He has been at work recently upon one for the Watson collection which was lately acquired by the library of the society.

Dr. Frederick A. Cook, of Bushwick avenue, arrived home February 20th from his trip to Europe.

Dr. Burdett O'Connor has moved to Butte, Montana, where he will have the care of the miners in the mines controlled by Mr. Heinze.

Dr. J. J. Keyes has added to his numerous trophies several cups won in the monthly clay pigeon shooting of the Crescent Athletic Club. Nearly every Saturday afternoon he seeks a needed recreation and relaxation from work at the traps at the Crescent Club grounds.

In the "Eagle" cup contest between teams of six from the Brooklyn regiments, which has been going on during the winter, Dr. J. L. Macumber shoots with the Fourteenth, Drs. H. P. de Forest and J. P. Warbasse with the Thirteenth, and Dr. C. D. Napier with the Twenty-third.

The examination for internes at the Kings County Hospital will be held May 1st, 10 A. M. There will be six vacancies. There is also a special examination to fill the position of resident pathologist. Application must be made before April 29th to Dr. J. T. Duryea, superintendent.

On March 21st Dr. Stuart Lewis, of Cambridge place, was married to Miss Jennie Campbell Landfear.

The desire for advertising seems to be contagious among physicians at the beginning of the new century. The pruning knife of the council of the Medical Society may have to be used.

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

EDITOR IN CHIEF:

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VOL. XV, No. 5.
WHOLE No. 161. }

BROOKLYN, N. Y., MAY, 1901.

{ Single copies 25 cents
{ \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

THE GENESIS OF URIC ACID.

BY R. H. CHITTENDEN, PH.D.,

Director of the Sheffield Scientific School, Yale University.

Read before the Medical Society of the County of Kings.

Among the many subjects possessing an equal interest for the physician and the physiologist, none are of greater practical or theoretical importance than those connected with nutrition. At the present time we do not hesitate to state that a great majority of the diseases the physician is called upon to combat are due to some perversion of nutrition; to some disturbance of the process of metabolism, and consequently we have a full measure of respect for that phase of physiological inquiry which aims to broaden our knowledge of the normal processes of nutrition. The study of disease is inseparably connected with a study of the physiological, for we learn to fully appreciate the significance of a deviation from the normal only when we have acquired a clear conception of the laws regulating and governing the normal processes of the body. All advance in this direction means, directly or indirectly, progress in our understanding of the abnormal and affords us

suggestions in the line of diagnosis and treatment of the greatest practical value.

Consider for a moment the great advances which have been made the past few years in connection with the purely physiological investigations carried out on the so-called ductless glands. To-day, the whole subject of internal secretions lies spread before us full of suggestions for both the normal and abnormal. We see how such tiny glands as the thyroid, suprarenal, pituitary, and indeed the pancreas, are under normal conditions constantly at work manufacturing secretions which, finding their way into the blood and lymph, are quickly distributed throughout the system, and exercise an all important influence over the metabolism of the body. Indeed, so essential are these secretions that their complete loss means sure death, certainly in the case of the adrenals, thyroids, and pancreas. We have learned the significance of the epinephrin, of the adrenals in keeping up vascular tone; we have seen how complete loss of thyroidal tissue is accompanied by a gradual change in the metabolic processes, terminating at last in death by convulsions after a somewhat slow but sure loss of bodily vigor; we have followed the suggestive experiments of von Mering and Minkowski on the extirpation of the pancreas, and have learned to appreciate the importance of the internal secretion manufactured by this gland in regulating the production or consumption of sugar in the body. We have learned that these internal secretions owe their activity to specific chemical substances manufactured in the gland cells, and that we can, in some measure at least, counteract the effects following the removal of a given set of glands by supplying to the system the active principles which the body imperatively demands, if the normal nutritional rhythm is to be maintained. Finally, we have been led to associate disturbance of the normal function of some of these ductless glands with a variety of diseases whose genetic relationship had not hitherto been clearly defined, such as parenchymatous goitre, exophthalmic goitre, cretinism, and myxœdema in connection with the thyroid, certain severe cases of diabetes with disturbance of the pancreas, and possibly acromegaly with degeneration of the pituitary.

We may take this new chapter in physiology, however, merely as affording a striking illustration of how advance along purely physiological lines may be accompanied or fol-

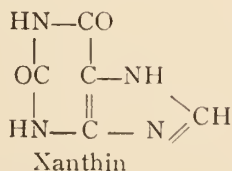
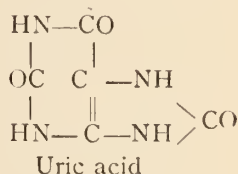
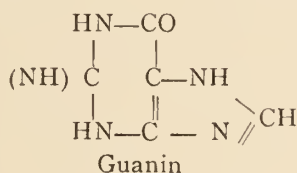
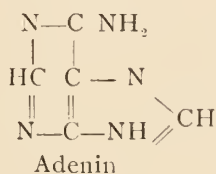
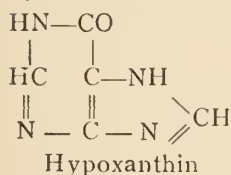
lowed by corresponding advance in directions of perhaps greater importance to the practitioner. It is not necessary, however, to plead a possible practical outcome as a reason for purely physiological inquiries. We are all students of the science of medicine, and whether we work in the laboratory, in the clinic, or at the bedside, we are all equally interested in the advancement of those experimental sciences which are so closely associated with practical medicine. There is a stimulus, likewise, from the pursuit of scientific inquiry which is felt not alone by the investigator himself, but also by him who follows the work intelligently and with a feeling of sympathy and self-interest in the advancement of knowledge, and so I venture to present to you some facts and theories connected with the origin of uric acid in the body purely as a study in nutrition or metabolism, yet feeling that you may perhaps find in the facts presented suggestions of some value from a practical standpoint.

The discovery of uric acid by Scheele in 1776, followed twenty-one years later by the observations of Wollaston on the presence of salts of uric acid in the joints, set in motion investigations regarding the origin of this substance which have been continued intermittently and with varying energy up to the present day. As a constant constituent of the urine, uric acid was naturally looked upon as a normal product of metabolism, while its large content of nitrogen pointed with equal positiveness to its probable origin in the decomposition of the proteid molecule. Further, the fact that uric acid, on decomposition or oxidation outside the body, readily breaks down into two molecules of urea, led to the belief that it might represent an intermediate stage in the oxidation of proteid in the body; a view which was finally rejected as having no foundation in fact. For a time it was held that urea and uric acid were always produced in the body in a certain definite ratio, but careful study soon revealed the fact that variations in diet led to marked alterations in this ratio. Further, it was observed that variation in the quantity of the ingested food—the character of the food being uniform—was followed by a greater alteration in the output of urea than of uric acid, and the ratio changed accordingly. Moreover, experimental evidence was soon forthcoming, which tended to show that ordinary albuminous foods, such as albumins and globulins, while leading to increased output of urea, were

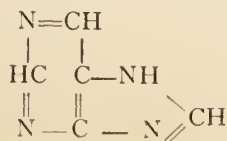
without corresponding influence upon the excretion of uric acid, consequently there was suggested a possible independent origin of the latter substance. Of late, as you know, there has been a growing belief, founded upon much experimental evidence, that there is a direct relationship between the amount of uric acid in the urine and the amount of nuclein contained in the ingested food. True nucleins yield on decomposition a number of so-called nuclein bases, such as adenin, xanthin, hypoxanthin, and guanin; bodies which are closely related to uric acid chemically. A diet rich in nuclein, such as the thymus gland or calves' sweetbread, gives rise to a large output of uric acid, and hence the view, widely circulated, that the uric acid of the urine comes mainly from the breaking down of the nuclein of the food. The nuclein bases and uric acid are all alloxuric or purin bodies, *i. e.*, they all possess a similar chemical structure, and it is not difficult to see how the slight transformation involved in conversion of hypoxanthin, for example, into uric acid could occur. Horbaczewski, in 1891, indeed, showed that spleen pulp, which is rich in leucocytes, and hence is rich in nuclein, if allowed to undergo slight putrefaction, and is then treated with oxygenated blood, yields a fairly large amount of uric acid. Further, Spitzer has found that the purin bases, such as xanthin and hypoxanthin, when treated with simple extracts of certain glands, as the liver, in the presence of blood and air, are oxidized directly to uric acid. Again, Minkowski has demonstrated that by feeding hypoxanthin (to men and dogs), a large increase of uric acid occurs in the urine. Hence, we feel justified in believing that uric acid may owe its origin, in part at least, to a transformation in the body of such substances as xanthin and hypoxanthin, these in turn coming from the breaking down of nuclein-containing material. It is evident, however, that if uric acid comes from a breaking down of nuclein, through the stage of a purin base, it is by no means certain that its origin is to be sought for solely in the nucleins of the ingested food. Cell decomposition is constantly taking place in the tissues of the body; tissue elements are continually undergoing destruction; leucocytes are constantly breaking down, and consequently there is no reason, theoretically at least, why a certain amount of uric acid may not be formed from the nuclear material of the animal's own tissues, and hence be quite independent of the ingested food. Again, if, as has been pointed

out, the purin bases are direct antecedents of uric acid, then foods rich in such bases, as Liebig's extract of meat, or meat with its contained meat juices, must of necessity likewise be a direct source of uric acid in the body. We may, therefore, accept, provisionally, at least, what Burian and Schur term the exogenous and endogenous origin of uric acid. Under the head of endogenous we have to consider the various ways in which the acid may originate from catabolic changes involving the tissues of the body itself, while under the head of exogenous we naturally look for explanation of the methods by which uric acid is derived from various kinds of food, etc., introduced from without.

As prefatory to a more detailed consideration of some of the facts bearing on the problem under discussion, it is necessary to emphasize two vital points. First, the close chemical relationship of the purin bases, viz., adenin, hypoxanthin, guanin, xanthin, and the methyl xanthins, theo-bromin, caffenin, etc., together with uric acid, which is likewise a purin body. The intimate chemical relationship of these bodies is indicated by the following structural formulæ:



Purin, as has been shown by E. Fischer, has the formula:



and the above purin bodies, *i. e.*, the purin bases and uric acid, are derived from purin by simple substitution of the various hydrogen atoms by hydroxyl, amid or alkyl groups, as is plainly evident from comparison of the different formulæ.

Secondly, it must be noted that all true nucleins on decomposition by chemical means yield more or less of the above purin bases, as was first pointed out by Kossel. This means that all nucleins contain in their molecules some purin bases, *i. e.*, in a state of combination, from which combination they can be split off by appropriate means either in the body or by chemical methods outside of the body. Further, as these nuclein or purin bases stand in such close relationship to cell nuclei, it is easy to see how the quantity of these substances may be largely increased whenever from any cause the number of nucleated cells is increased in any part of the body. Thus, while normal blood yields only traces of purin bases, in leucemia the amount of nuclein bases may be increased to over 0.1 per cent.

If now we study, as Mares* did some fifteen years ago, the output of uric acid through the urine after a hearty meal of meat, we shall find that during the period of increased nitrogen excretion incidental to the ingestion of meat, uric acid rises very soon after the meal, and attains its maximum four or five hours thereafter. The excretion then falls rapidly. The excretion of urea, on the other hand, reaches its maximum about the ninth hour after the meal has been taken, and returns very slowly to its original value. This lack of parallelism in the excretion of urea and uric acid obviously suggested the existence of different lines of metabolism by which these two substances have their origin. Urea comes as a direct result of the ordinary proteid metabolism, while the uric acid might be supposed to have its origin in the tissues, its increased excretion being explained on the ground of increased cellular activity incidental to digestion. The facts at first glance accord well with Horbaczewski's widely-known theory of digestive leucocytosis, in which the greatly increased production and destruction of leucocytes attendant upon digestion is given as the explanation of a liberation of nucleins in the body from which the uric acid ultimately arises. If, however, we study the influence of different forms of diet upon both digestive leucocytosis and the excretion of uric acid, we

* *Arch. de biol.*, III., p. 207, 1887.

find certain facts difficult of explanation by the above theory. Thus, we may have a well-marked digestive leucocytosis on a non-nitrogenous diet without any corresponding increase in the output of uric acid, and indeed we may increase greatly the number of circulating leucocytes by a diet of egg-albumin without any noticeable rise in the excretion of uric acid. Such facts as these have tended to throw discredit upon the leucocytosis theory, and have in a measure lent favor to the view that the post-prandial increase of uric acid is to be attributed directly to the breaking down of the nucleins of the food, or to the presence in the food of some one or more substances capable of direct conversion into uric acid. Hopkins and Hope,* in a series of experiments on seven individuals, found, in conformity with the results of other investigators, that after thymus feeding—a rich nuclein-containing food—there was a very marked rise in the excretion of uric acid, and that this increase was of much briefer duration than the increase of urea, but they found it difficult to associate this increase of uric acid output with an origin of the uric acid in the nucleins of the diet, upon which, as they state, the earlier stages of digestion have only a minimal influence. Further, Hopkins and Hope point out that extracts may be prepared from the thymus gland which contain at most only traces of nucleins and nucleic acid, but which, when ingested, produce the characteristically large and immediate excretion of uric acid. These investigators, therefore, were of the opinion that of the total amount of uric acid normally excreted that portion which bears a more immediate relation to the ingested food does not arise from nucleins, but from some more soluble constituent of the diet, acting either as a direct precursor, or as a factor in some synthetical process. Of course this view by no means excludes the idea that some of the uric acid produced and excreted may arise from a direct breaking down of nucleins. The very nature of the nucleins precludes the idea of admitting the impossibility of such action.

A large number of feeding experiments, not yet published, carried out in my own laboratory by Dr. Brown, have shown that organs more or less rich in nucleins and purin bases, as the thymus, pancreas, lymphatic glands, liver, spleen, kidney, brain, and fish roe, when taken as isolated meals, all induce in varying degree a decided rise in the hourly output of uric acid.

* *Journal of Physiology*, XXIII., p. 27, 1898.

Further, Dr. Brown observed that when beefsteak, with its minimal content of nuclein and its relatively large content of purin bases, was ingested the general course of the hourly rise and fall of uric acid in the urine was quite analogous to that produced by the ingestion of comparable quantities of liver, pancreas, lymphatic glands, and spleen, viz., organs more or less rich in nuclein. Moreover, it was found, in conformity with the observations of Hopkins and Hope, that the rise of uric acid, after ingestion of the above tissues, was very abrupt, the excretion reaching its maximum usually in the third or fourth hour after the meal, sometimes decreasing to normal within eight to ten hours, and sometimes maintaining a much higher value than in the abstinence period. Further, it was observed that while the ingestion of thymus does not lead to a higher excretion of uric acid than the other nuclein-containing glands, yet the uric acid output was maintained above the abstinence value more strikingly throughout the period of the experiment. Experiments were likewise made with extracts of the various glands, but the results obtained were not as striking as those reported by Hopkins and Hope. In some cases a small increase in the excretion of uric acid was noted when those were ingested, and in all cases the extracted glandular tissue when cooked and ingested failed to give the characteristic rise of uric acid generally obtained with the glands prior to extraction of their soluble matter. Pure nucleins prepared from yeast, and also from thymus glands when ingested, Dr. Brown found, caused a slight but constant rise in the hourly uric acid output, while the nucleoproteid prepared from the pancreas had a striking effect in raising the hourly excretion of uric acid. Hence, these results would seem to indicate that the nucleins may share to a certain extent, at least, in the uric acid excretion directly associated with the diet. The large immediate rise of uric acid in the urine after favorable diets is, however, more probably due to the absorption and oxidation of soluble precursors, such as free purin bases, while the less conspicuous rise, and which is longer continued, is probably due to the more slowly absorbed nucleins.

True nucleins are characterized, not alone by their content of purin bases, but also by their content of phosphorus, and in the decomposition of nucleins, both inside and outside of the body, purin bases and phosphoric acid alike result. Con-

sequently, we may in some measure at least trace out the extent to which nucleins are absorbed and utilized in the body by studying the excretion of phosphoric acid or phosphorus. Nucleins, as a class, are not readily acted upon by the digestive fluids, and we may well ask the question at this point how far bodies of this class taken in with the food are broken down in the intestine and how far they are absorbed? Some interesting experiments recently reported by Loewi* may be referred to in this connection. Using a dog as the subject, and feeding, respectively, with nuclein and nucleic acid from salmon sperm, pancreas nuclein, and yeast nuclein, Loewi found that these food nucleins are in part broken down in the intestine, and that the phosphoric acid of the portion so decomposed, passes into the feces, while the nitrogen-containing portion of the molecule is absorbed. The larger portion of the nuclein, however, resists cleavage in the intestine and is wholly absorbed, the phosphoric acid remaining in organic combination.

This nuclein which is absorbed, Loewi finds, suffers metabolism, its phosphorus appearing in the urine as phosphoric acid, while the nitrogenous portion of the molecule leads to a marked increase in the output of uric acid in the urine. Thus, by feeding a man with a standard diet of known composition, and then adding, for example, pancreas nuclein to the diet, the excretion of phosphoric acid in the urine was raised from 2.5 grams to 3.04 grams, while at the same time uric acid was increased from 0.604 gram to 1.59 grams. Urea, on the other hand, was not increased in amount. From these facts we must conclude that the absorbed nuclein is a direct source of uric acid, the contained purin base undergoing oxidation or change into uric acid, the corresponding increase in the excretion of phosphoric acid furnishing convincing proof of the complete breaking down of the nuclein. Further, the fact that the excretion of urea is not increased, in conformity with the increase in total nitrogen, is a further, indirect, proof of the part played by the absorbed nuclein in the production of the specific product, uric acid.

We may now recur to the theory of Horbaczewski that the nuclein of the food is not a direct source of uric acid, but that it acts indirectly by inciting a leucocytosis, which is followed

* Untersuchungen über den Nucleinstoffwechsel von Dr. Otto Loewi, 1900. (Aus dem pharmacologischen Institut der Universität Marburg.)

by a breaking down of cell-nuclei, from the purin bases of which comes the uric acid. On this subject we have some interesting experiments just reported by Sivéń*, of Finland. This investigator finds, as the result of a large number of observations made upon himself with a standard diet, accompanied by thorough analyses of the excretions, that while the number of leucocytes in the blood may be decidedly influenced by different kinds of food, yet there is no corresponding change in the output of uric acid in the urine. On a rich proteid diet a distinct digestive leucocytosis may be induced, but there was not observed in such cases any increase in the production of uric acid. Thus, again, we seemingly have evidence that the uric acid of the urine does not originate in the nuclein material of the leucocytes, from which we must infer that so far as food nuclein plays a part in the production of uric acid, the latter must come from a direct decomposition or cleavage of the nuclein, *i. e.*, through the contained purin base or bases. Further, Sivéń's experiments, made with diets from which nucleins were practically absent, showed very strikingly how variations in the character of the diet will change the amount of uric acid. Thus, for a period of seventeen days, with a daily diet of potatoes, bread, butter, cheese, eggs, milk, apples and beer, the daily output of uric acid averaged 0.433 gram, but when meat was added to the diet the excretion of uric acid amounted to 1.009 grams per day. As Sivéń points out, the cause of this great increase in the excretion of uric acid is not the proteid or albumin *per se*, but the extractives contained in the meat, *i. e.*, the purin bases. This is an important matter for us to remember. It is the meat, *viz.*, the extractives of the meat, that are responsible for this increased production of uric acid. It is not a question here of difference between animal and vegetable proteid, but simply a question of the amount of purin bases contained in the food. Thus, excluding meat, or meat soup, and nucleins, Sivéń found that with a daily diet containing 1.5 grams of animal albumin and 17 grams of vegetable albumin, added to carbohydrate and fat, the daily output of uric acid was 0.433 gram. If now the animal albumin was even raised to 125 grams per day, with 20 grams of vegetable albumin in addition, the output of uric acid remained essentially the same. In other words, animal proteid—excluding the purin bases and

* *Skandinavisches Archiv fuer Physiologie*, Band XI., p. 123. 1900.

nucleins—is no more productive of uric acid than vegetable albumin. Probably, both are quite innocent of any direct connection with the origin of uric acid.

Granting the truth of the above statements, we are brought again to a consideration of the endogenous origin of uric acid. We have seen how the purin bases of the food and the nucleins may give rise to a certain amount of uric acid, but excluding these from the diet, we still have uric acid in the urine, although in greatly lessened amount. Even during fasting uric acid appears in the urine, from which we must necessarily assume its endogenous origin. I may quote in this connection, however, some experiments by Taylor*, published in 1899. On a diet entirely free from nitrogen—composed exclusively of sago, sugar and butter—this experimenter found during a period of six days a daily output of uric acid amounting to 0.273 gram, with a daily excretion of 7.738 grams of urea. In this experiment of six days the body was obviously thrown upon its own tissues for its nitrogenous metabolism, and yet there was excreted each day 0.273 gram of uric acid. How did the acid originate? It obviously could not come from non-nitrogenous food. It must, therefore, have had its origin in the breaking down of nuclear or nucleinic material from the man's own tissues. Equally interesting and suggestive were the results obtained on a purely milk diet. For six days the daily diet consisted solely of 2,750 c.c. of milk, and yet with this large amount of proteid food, causing a daily output of 36.213 grams of urea, the excretion of uric acid was only slightly above the amount excreted on a non-nitrogenous diet, viz., 0.284 gram per day. We have here, then, another illustration of the fact that it is not proteid matter *per se* that leads to an increased manufacture and output of uric acid, but it is the form of the proteid, *i. e.*, whether it contains or is combined with a true nuclein. Thus, as soon as sweetbreads were added to the diet, uric acid began to appear in the urine in large quantity. Taking about 500 grams of the thymus and pancreas of the calf, together with bread and non-proteid vegetables as the daily diet, Taylor found that the urine excreted would not hold the uric acid in solution, the acid rising even as high as 1.5 grams per day. As Taylor justly says, "the current use of sweetbreads during convalescence from acute

* *The American Journal of the Medical Sciences*, vol. CXVIII., p. 141, 1899.

gout, as a light white meat, is not founded upon a knowledge of its properties." Again, as illustrating how active the purin bases are in increasing the production of uric acid, the influence of coffee, with its contained caffen (trimethylxanthin) may be referred to. Thus, with a normal diet on which the excretion of uric acid was 0.364 gram, Taylor found that the addition of three cups of coffee led to an average excretion of 0.826 gram of uric acid per day; *i. e.*, the output of uric acid was more than doubled under the influence of the caffen of the coffee.

In considering the endogenous origin of uric acid, we may ask the question how far the acid originating in this manner is constant in amount for the same individual? From what has been said it is evident that we can ascertain with a fair degree of accuracy the amount of endogenous uric acid by determining the output of uric acid during fasting, or on a diet from which all free or combined purin bases have been eliminated. Thus, with a diet containing milk, eggs, cheese, wheat bread, potatoes, rice, butter, sugar, etc., we may feel quite confident that uric acid excreted through the urine is purely of endogenous origin, since these foods contain little or no true nucleins or purin bases. Taking the results obtained, we find that the daily output of uric acid is practically constant for the same individual, no matter how much the quality and quantity of the diet may vary, provided there is freedom from purin compounds. When, however, the excretion from different individuals is studied it is found that there is apparently a definite, constant difference, from which we are led to infer, 1st, that the daily endogenous production of uric acid is a physiological constant; *i. e.*, that every individual, independent of the food taken, excretes a certain constant amount of uric acid of endogenous origin; secondly, that this physiological constant varies with different individuals, although in the majority of cases the variation is not great. There are, however, apparently certain causes which may lead to some fluctuations of this endogenous uric acid in an individual. Thus, Siven has found that the excretion of uric acid is greater during the day than during the night; a fact which is, apparently, connected with the larger amount of work done by the tissues during the day-time. This might *a priori* be expected, since the endogenous uric acid comes from the breaking down of the tissues. This being the case,

the endogenous uric acid excreted may be taken as a measure of the amount of cellular decomposition. It is to be remembered, however, that in the breaking down of cell nucleins in the body not all of the purin bases liberated appear in the urine as uric acid; a certain quantity of purin bases passes into the urine as such. Thus, on a milk-egg diet, in one experiment reported by Burian and Schur* on man, the total daily output of purin nitrogen in the urine was 0.154 gram, of which 0.133 gram was uric acid nitrogen, and 0.011 gram was nitrogen, in the form of purin bases.

Lastly, in considering the exogenous origin of uric acid, it is to be understood that not all of the purin compounds of the food appear in the urine as uric acid or as purin bases; *i. e.*, a certain proportion of these ingested purin compounds are decomposed within the organism. The proportion of the purin substance so decomposed, or the proportion of the ingested purin nitrogen which appears in the urine, is not dependent upon the individuality of the organism, but rather upon the character of the purin compounds themselves. Thus, according to Burian and Schur, hypoxanthin and the purin nitrogen of the nucleins of muscle, liver and spleen, when ingested, appear in the urine (in the case of man) to the extent of 50 per cent., while of thymus nuclein, which contains mainly adenin, only 25 per cent. of the purin nitrogen appears in the urine, and mainly in the form of uric acid. In other words, the *nature* of the free or combined purin bases ingested is the factor which determines both the extent to which the purin nitrogen appears in the urine and the form in which it appears, *i. e.*, whether as uric acid or as purin base.

Thus, according to Burian and Schur, 100 grams of calves' thymus contain about 0.40 gram of nitrogen, in the form of combined purin bodies, and when ingested by a healthy man this quantity of thymus gives about 0.10 gram (exogenous) of nitrogen, in the form of urinary purin bodies. One hundred grams of coffee, on the other hand, contain about 0.20 gram of nitrogen, in the form of caffeine, and this yields, when ingested, about 0.075 gram of urinary purin nitrogen.

From the foregoing somewhat fragmentary statements we are justified, I think, in drawing the following general conclusions: In man uric acid has a twofold origin; one portion, coming from the breaking down of nuclein-containing tissues, or cell

* *Archiv fuer d. gesammte Physiologie*, Band 80, p. 241, 1900.

elements, of the man's own body, and hence is of endogenous origin, while the other portion—usually the larger—is of exogenous origin, coming from the transformation of free and combined purin compounds present in the food. The uric acid of endogenous origin is essentially constant in amount for the same individual under all conditions of diet, but is subject to slight variation in connection with alterations in the activity of the tissues. Changed conditions embodying increased catabolism of the tissue elements, increased breaking down of cells and cell nuclei, might naturally be expected to cause slight alteration in the amount of endogenous uric acid, but analytical results at present do not justify belief in any profound changes in the uric acid output due to this cause. The amount of endogenous uric acid is, therefore, a physiological constant for a given individual, and, as might be expected, decided variations are to be found in the value of this constant for different individuals. In other words, personal idiosyncrasy, constitutional differences, etc., may manifest themselves in the amount of endogenous uric acid produced. Such a condition of things is by no means strange, or out of harmony with physiological laws. There is a personality in every man, internal, as well as external, and the individual constancy in endogenous uric acid production is merely another illustration of the general truth of this law. Individual functional peculiarities are as liable to existence as personal peculiarities of form and structure.

The amount of exogenous uric acid produced in the body is dependent mainly upon two factors, *viz.*, the quantity and character of the nucleins contained in the ingested food, and the quantity and character of the free purin bases present in the food. The nucleins owe their influence solely to the combined purin bases they contain, and since nucleins from different glands and tissues differ, both in the amount and character of the purin bases present in their molecules, it follows naturally that the individual nuclein-containing foods have different values as sources of exogenous uric acid. Further, since all nucleins are somewhat solely attacked by the digestive fluids, it follows that the uric acid coming from this source does not appear at once in the urine, but is found some hours after digestion has been under way. The free purin bases, on the other hand, such as are contained in meats, meat juice, meat extracts and soups, coffee, cocoa, etc., lead

to a quicker output of uric acid, owing to their ready solubility and availability. Differences in the extent of this form of exogenous uric acid production, however, are traceable to differences in the *nature* of the free purin bases; adenin, hypoxanthin and guanin, for example, showing distinct differences in the extent to which they are individually converted into uric acid in the body.

Finally, we see that there is no causal relationship whatever between the daily urea and uric acid output. They come from totally different lines of metabolism; they stand for totally distinct chemico-physiological processes, and hence any attempt to emphasize the so-called ratio of urea to uric acid in the urine is misleading, and shows, furthermore, a lack of understanding of the true genesis of these two excretory products. Between uric acid and ordinary proteid metabolism there is no connection whatever. With a purely non-nitrogenous diet, on the one hand, and a diet rich in eggs, milk and cheese, on the other, with perhaps a maximum amount of contained proteid, the output of uric acid remains practically unchanged. The genesis of uric acid is to be found solely in metabolism of the tissue nucleins (endogenous) and in the transformation of the nucleins and free purin bases of the ingested foods (exogenous).

A CASE OF TRANSPERITONEAL LIGATION OF THE EXTERNAL ILIAC ARTERY FOR FEMORAL ANEURISM.

BY RUSSELL S. FOWLER, M.D.,

Brooklyn, N. Y.:

Assistant Surgeon to the Methodist Episcopal Hospital, the Brooklyn Hospital and the German Hospital.

Case exhibited and paper read before the Brooklyn Medical Society, Sept. 21, 1900, by Dr. J. F. Haller in the absence of Dr. R. S. Fowler.

J. C., laborer, age 29, male, Italian, was admitted to the Brooklyn Hospital August 2, 1900, service of Dr. G. R. Fowler, referred by Dr. W. J. Cruikshank.

HISTORY.—*Family history* good.

Previous personal history good.

Employment for one and a half years past, carrying ice.

History of present disease. Seven months ago he discovered a swelling, about the size of a "raisin," just below Poupart's ligament, on the right side, over the course of the femoral artery.

Symptoms. Just below Poupart's ligament in the region of the femoral vessels, on the right side, there is a pulsating tumor about the size of a hen's egg. The edges cannot be clearly defined, as they are lost in the surrounding tissues. Pulsation is forcible and strong enough to separate two fingers when gently applied over the tumor laterally. There is constant pain. A very loud, blowing sound (bruit) is heard simultaneously with the apex beat of the heart.

TREATMENT. Before resorting to operative treatment I determined to try graduated pressure over the tumor, restricted diet, and the administration of potassium iodide.

For one week, from the second day of August, the date of his admission to the hospital, to the ninth day of August, the date of operation, this treatment was carried out very carefully. The right limb was bandaged from the foot up and a graduated gauze compress was applied; this reapplied, a little tighter each day, over the tumor. This was reinforced by a screw tourniquet.

This treatment having failed to reduce either the size or pulsation of the tumor, and having increased the pain, I decided upon operative measures.

OPERATION.—On the morning of the 9th day of August the operation was performed at the Brooklyn Hospital. As the tumor extended well under Poupart's ligament, it was decided to ligate the external iliac artery in its first part through an abdominal incision.

The right rectus or lateral laparotomy, advised by the textbooks, is a procedure which I have employed in numerous cases involving infection of the vermiform appendix. This method of opening the abdominal cavity is open to certain objections, chief among which is destruction of the nerve supply of the lower fourth of the abdominal parietes on the side where the incision is made. So in this case I decided to employ the intermuscular method of exploring the contents of the right iliac fossa.

Having decided upon the point at which the ligature was to be applied, and the method of exposing the site of ligature, there remained the question of planning a skin incision that would leave the slightest possible scar. In former times the surgeon was content if the patient's life was saved, or his condition ameliorated. To-day one does not feel content unless the final

result is the very best attainable, including considerations from a cosmetic standpoint.

Years ago Professor Robert T. Morris, in his lectures at the Post-Graduate Medical School in New York, taught the value of cosmetic incisions. During the past year I have used tenacula in stretching the skin in making straight incisions. This has certainly resulted in a finer and less conspicuous scar than by the old method of putting the skin upon the stretch with the fingers. There is a danger in the use of tenacula upon the abdominal wall, however, in the hands of an unskilled assistant, to which I desire to call attention: In one of my cases of hysterectomy, in a greatly emaciated patient, a tenaculum pierced the abdominal coverings completely and injured a loop of small intestine. In this case the abdomen was entered with the tenaculum still *in situ* and the bowel injury immediately discovered. It is possible that a serious accident might happen in this manner, through the neglect of an unobserving assistant, even with the use of the smallest tenacula.

Not satisfied in making a straight incision, I sought to so manipulate the tenacula as to make a curved incision. After experimenting for some time upon the cadaver, I found that three tenacula, one placed at each extremity and one at the most prominent bend in the proposed curved incision accomplished the object. By drawing the middle tenaculum into a straight line with the first and the third, I could make a straight cut through the skin, and yet have a clean-cut curved incision upon removing the tenacula. I have made the Küstner incision in this manner a number of times, and have also employed it in Prof. George R. Fowler's curved skin incision, in his intermuscular operation for exposing the contents of the right iliac fossa. Everyone who has had the experience can appreciate how difficult it is to make a clean-cut curved skin incision. By the use of tenacula, in the manner I have just indicated, it is possible to do so, however. It is well to first try it a few times upon the cadaver, in order to familiarize oneself with the amount of tension it is necessary to employ.

Technic employed in this operation. The skin was incised in the above manner. The central point of the curved incision was laid over the site of the base of the vermiform appendix.

The skin flap was reflected and the aponeurosis of the external oblique muscle incised in the direction of its fibers. The edges of this were retracted, thus exposing the sheath of the rectus and the internal oblique muscle.

The sheath of the rectus was opened in the direction of the fibers of the muscle for the space of one inch. This permitted retraction of that muscle and the underlying epigastric vessels, thus protecting them from injury during the final incision.

The internal oblique muscle and the underlying structures, including the peritoneum, were incised in the direction of the fibers of the internal oblique. This incision was carried across the posterior sheath of the rectus far enough to permit of complete exposure of the cecum. The patient was kept in the Trendelenburg posture to prevent the small intestine from interfering with the operation. By pushing aside the cecum the external iliac artery was exposed and came into plain view, where it enters the lesser pelvis. The peritoneum overlying the artery was opened for about half an inch; the external iliac vein was pushed to the right, and a triple ligature of catgut applied around the artery with the aid of a blunt aneurism needle. The three strands of catgut were tied in a "stay knot." This knot was devised by Ballance and Edmunds, and is tied in the following manner: The three strands are first tied separately, but instead of completing the three knots in the usual manner, the three ends on each side are picked up and tied with the three ends of the opposite side into one knot when finished. This method absolutely precludes slipping of the ligature. The ends of the ligature were cut rather long. The half-inch incision in the peritoneum was closed with a purse-string suture of the finest catgut.

The vermiform appendix was next exposed and had the appearance of being inflamed, the vessels over its surface being rather congested. The body had a thick feel to the touch and a fecal concretion could be made out within its lumen. As the patient's condition remained good, it was decided to remove the appendix, which was done after the typical method devised by Prof. George R. Fowler.

The deeper layers were sutured with catgut from preference, including the internal oblique muscle, and were all included in one suture. Kangaroo tendon was used in closing the incision in the rectus sheath and the aponeurosis of the external oblique. The edges of the skin were approximated by an intracuticular suture of catgut, a break being made at the convexity of the curve to admit of prompt withdrawal of the suture, if necessary. Those who may be interested in a more detailed description of the inter-muscular operation can find the same in Dr. G. R. Fowler's

article upon that subject in the *Medical News*, New York, March 3, 1900.

An examination of the appendix was made by Dr. Charles Herman.

Gross appearances. Appendix three inches long; clubbed end, otherwise normal in color, etc. Upon laying open the canal four separate fecal masses were found, varying in size, and located in the first two inches near the base, semi-solid and easily broken up between the fingers. About one dozen pin-worms, varying from one-fourth to one-half inch in length, also occupied the canal. At the free end of the canal a large fecal accumulation, imbedded in which was a grape seed, whose rounded smooth end approximated the bottom of the canal, was also found. The mucous membrane appeared normal, though thickened at this point.

Microscopic. All the coats thickened at the end; small, round cell infiltration.

After-treatment and remarks. It is needless to say that pulsation in the aneurismal sac ceased at once when the ligature around the iliac artery was tightened.

A snug bandage was applied to the entire limb, including the groin, pelvis and abdomen. Extra pressure was brought to bear over the aneurismal sac by means of folded gauze compresses.

The days following the operation were uneventful. The relief of the agonizing pain in the neighborhood of the sac was immediate.

The morning after the operation the patient looked like a different individual. Whereas he had previous to the operation suffered from insomnia that no safe amount of Magendie's solution could overcome, he was now calm and placid, and expressed his heartfelt appreciation for what had been done for him.

On the third day he was allowed full diet.

On the seventh day the wound was dressed at the regular Thursday clinic and the intra-cuticular sutures removed. On the fourteenth day he sat up in bed. On the twenty-first day he was discharged cured.

As a precautionary measure he was instructed to abstain from severe exercise for one month and was given a snug support to wear over the former seat of the aneurism.

You will notice upon examination that there is hardly any prominence over the former site of the tumor; that collateral circulation has been fully established and the patient has no inconvenience in walking.

A RESUME OF PRESENT KNOWLEDGE CONCERNING WATER PURIFICATION, AND SOME COMMENTS RELATIVE TO THE NEEDS OF THE BROOKLYN WATER SUPPLY.

BY GEORGE W. FULLER,
Associate Member, American Society of Civil Engineers.

Read before the Medical Society of the County of Kings, September
18, 1900.

Mr. President and Members of the Society:

It gives me great pleasure to meet with you this evening and to join in a discussion upon the topic of public water supplies. The health of communities is so materially affected by the character of their drinking water that this branch of public service, in order to bring about proper improvements and maintenance, especially demands the support of intelligent and well-defined public opinion.

There are several sides to the question of providing a public water supply which shall satisfactorily meet the requirements of the future. Primarily the water must be of a hygienic character which is above suspicion. It must be a palatable water, free from turbidity, vegetable color and objectionable tastes and odors. It must be supplied at all times under suitable pressure and in quantities which shall provide most liberally for all legitimate public and private uses.

To provide large municipalities with such water supplies in a satisfactory and economical manner, there is required the best thought available from the standpoint of the engineer, the medical health officer, and the water analyst. It is not so long ago that water works were frequently constructed with only very little attention to the quality of the supply. With the advent of the germ theory of disease, the new science of bacteriology, and the compilation of vital statistics by health departments, there has been a marked change. At present it is gratifying to note that the foremost engineers make every effort to build works which shall be in accord with the best views of sanitary science. That this will be true to an increasing degree in the future is indicated by the fact that at various institutions courses of instruction are being offered which teach the fundamental principles of all three phases of this branch of public work.

It is frequently said that improvements in public works are made to a degree which is substantially proportional to advances in public opinion in connection therewith. In general terms this seems to be true. With regard to public opinion upon the sanitary character of public water supplies, there can be no doubt but that the last decade has seen most substantial progress. During this period about forty of the leading American cities have given official attention to the question of improving their water supply, either wholly or in part, for sanitary reasons.

In moulding public opinion to a degree which paves the way for improvements in the sanitary condition of water supplies, the rôle played by the medical profession is generally recognized as a very important one. Not only has the profession rendered excellent service officially as members of boards of health, but it has perhaps accomplished even more in an individual manner by its instruction in sanitary laws to the citizens as its members come in intimate contact with them in their homes. In the years to come the general public will doubtless appreciate more fully than now the great debt which they owe to the medical profession; and the profession itself will probably look back with more pride than it now does to the excellent work in this field which it has patiently and gratuitously accomplished in the interests of humanity.

In extending an invitation to me to say a few words to you this evening, it was requested that I should take up the question of the methods of water purification. Among the various lines of sanitary work there is none more important than this one. So far as can be learned from present indications, the day is not far distant when practically all surface waters will require purification in order to satisfy the consumers as to the quality of the water. Progress in this direction will be controlled largely by financial considerations. In this connection it is to be pointed out that in most American cities there is enough water absolutely wasted to cover more than the cost of thorough purification of a sufficient quantity to provide most liberally for all legitimate uses. For the most part the general public does not seem to have grasped the significance of this fact as yet. But it is only a question of time when public opinion will become sufficiently crystallized to solve this, as it has former problems of equal difficulty.

METHODS OF WATER PURIFICATION.

Of the various methods which have been proposed for the purification of municipal water supplies, there are at present two which in point of efficiency and economy are most worthy of careful consideration. Each has its special field of usefulness and superiority, and each has its limitations. In both methods, filtration plays a prominent part. Under some conditions it constitutes the entire process, while under other circumstances it is associated with sedimentation or coagulation, or both. The older of the two methods, and the one which received almost exclusive attention until very recently, is variously known as sand filtration, English filtration, or slow filtration. With the other method the devices are called mechanical filters, rapid filters, or American filters. The nomenclature is as yet on a very unsettled basis, and most persons make frequent use of two or more names for each process. In view of the fact that there is a series of factors which characterizes each process when operated at a high degree of efficiency, I am not wholly satisfied with a nomenclature which is based solely on one superficial feature. It would seem to me much preferable to use names which imply the whole series of factors which stand for the highest grade of work. For this reason I prefer the names English and American filters, from the countries where they were respectively developed; and in the following brief account of each method these names are used.

ENGLISH FILTERS.

Description.—These filters consist essentially of a layer of sand from 3 to 5 feet thick, supported by layers of graded gravel, and contained in basins having water-tight bottoms, and an area ranging from about 0.5 to 2.0 acres. On the floor of the basin beneath the gravel are collecting drains and pipes which collect the water from the entire area and conduct it to the main outlet pipe. The raw water enters the filter at the top, and usually stands about four feet deep above the top of the sand layer. It passes downward when the filter is in operation, and flows successively through the sand layer, the gravel layers, the collecting pipes and drains until it reaches the main outlet. The rate at which the water passes through the filter is controlled either by valves or, better, by automatic

regulating devices at the main outlet pipe. This rate is normally equal to about 1.5 to three million gallons per acre daily. Expressing this rate in other terms, it may be stated as ranging ordinarily at different plants at from about 11.5 to three gallons per square foot per hour, corresponding to a vertical drop in the water level of from about 2.5 to 5 inches per hour.

When the water passes through the sand layer there is retained at and near the surface those matters, including the bacteria, which are suspended in the water. Some dissolved organic matter is also removed. The accumulation of these matters ultimately clogs the surface of the sand layer to a degree which requires the removal of a thin layer of the dirty sand, in order to maintain the yield of the filter. When it becomes necessary to clean a filter, usually about once a month, but depending upon the character of the water and the loss of head allowed, the raw water is shut off at the inlet pipe and the sand layer allowed to drain. After the surface becomes dry enough to walk upon, the workmen scrape off the thin layer of clogged material, ranging in thickness from about 0.25 to 0.75 inch. Upon completing the scraping, the sand layer is slowly and carefully filled with water, and filtration resumed. In cold climates it is necessary to cover the filters, in order to prevent serious interference with scraping during coldest winter weather.

With regard to the precise means by which English filters accomplish the purification of water, it may be said that they depend upon functions which are partly mechanical, or physical, partly chemical, and partly biological. The part played by each function doubtless varies with different waters. To enter more fully into these considerations of a more or less theoretical nature seems to be unnecessary at this time, as detailed accounts of the subject are to be found in the technical literature, particularly the Report of the Massachusetts State Board of Health for the year 1894.

History.—English filters were first built in 1829 by James Simpson for the Chelsea Water Company of London. At first their adoption increased very slowly. After 1850 the development was rapid, both in England and on the Continent. For a time they were regarded essentially as a means of clarification; and it was not until after 1885 that people began to comprehend fully the wonderful powers of purification which

these filters possess. In America there were only two or three very small English filter plants prior to 1893; and, while several plants have been built since that date, the day of these filters in this country is just beginning to dawn.

Laws.—When there is adopted a process which is intimately associated with the health of the community, it is important that it shall be thoroughly understood, so that the construction and operation of works will conduce to a high grade of efficiency. For this line of work such knowledge is called the laws of filtration. For those filters the laws under local conditions have been carefully studied in Europe at Berlin, London, Zurich, Altona, and elsewhere, and in America at Lawrence, Pittsburgh, Cincinnati, and Washington. For the most part the evidence is very harmonious, and it may be stated with confidence that sufficient knowledge is available on the laws of English filters to make inexcusable any serious errors either in construction or in operation. The influence of the character of the raw water upon these filters, however, is not yet so well crystallized as could be desired.

Adoption.—According to the carefully prepared statistics of Mr. Allen Hazen, there are in operation at least 110 English filter plants in various parts of the world. They represent over 350 acres of filtering surface; yield more than 650 million gallons of water daily; and supply more than twenty-one million water consumers. Many of these plants are very large, supplying the leading foreign cities. Doubtless this number is considerably too small, due to the impossibility of securing statistics from many small foreign cities and towns. Of the total quantity of water filtered, according to these data, about 60 per cent. is found in Great Britain and nearly 20 per cent. in Germany. America contributes about 4 per cent., although the waste of water in this country is so great that the population here is not much more than 1 per cent. of the total which receives water filtered by this process.

Efficiency.—From a hygienic standpoint English filters have proven themselves to be a very efficient means for the purification of waters for which they are applicable. While it cannot be claimed that they are germ proof they are very nearly so, under favorable conditions of construction and operation. This is substantiated by the bacteriological analysis from filters in various parts of the world, showing day after day and year after year very high percentages of bacterial

removal and very low numbers of bacteria remaining in the filtered water. Still more decisive are the very low mortality records in various large European cities using filtered water, from those diseases known to be water borne, such as typhoid fever. These facts are so well known to you that it suffices to merely mention them, as is also true of the marked reduction in typhoid fever at Lawrence and Albany, following the adoption of filtration by those cities.

Cost.—Speaking in general terms, it would cost ordinarily in this country about \$20,000 per million gallons of daily capacity to construct English filters and their immediate appurtenances, but excluding sedimentation basins and an extra pumping plant, should they be needed. Placing the capital charges at 5 per cent., to provide liberally for both the interest and sinking fund, this item amounts to \$1,000 per annum, or \$2.75 per million gallons of water filtered. The cost of operation and physical maintenance of English filters under average conditions in this country may be estimated at about \$3.00 per million gallons of water filtered. Adding together these items, there is obtained \$5.75 as the total cost of purifying one million gallons of water by English filters. On the basis that each water consumer uses 100 gallons of water daily, the above figures show that the cost of filtration would be about 21 cents per capita per annum.

Applicability.—English filters are essentially applicable for the purification of waters which are polluted with sewage, which are only slightly or moderately discolored with vegetable stains, and which are not excessively turbid due to suspended matters that are so minute that they cannot be largely removed by preliminary treatment in subsidence basins.

Limitation.—It is not many years ago since nearly everyone interested in water purification, and including the speaker, was inclined to regard English filters as capable of being readily adapted to the satisfactory treatment of practically all waters. Common knowledge, so far as it went, indicated that these filters, sometimes with the aid of storage or subsiding basins, gave acceptable results in substantially every instance where they had been tried. In a general way it was known that they had a limited capacity for the removal of vegetable color, and it was understood that under some conditions they gave an effluent which was appreciably turbid. Within the past few years our knowledge of these matters has become

more specific, although some of the data are from fifteen to twenty years old. In the instance of waters containing large quantities of vegetable coloring matter, English filters are now known to be much less efficient than was formerly supposed to be the case. With the very turbid clay-bearing waters of the large rivers in the southern and western parts of this country, the inadequacy of preliminary subsidence for the preparation of those waters for filtration during flood periods was learned in general terms at Louisville in 1884-5, and at St. Louis in 1886-7. In more definite terms it was investigated at Cincinnati in 1898. At the latter place it was learned that after the flood water was subsided for three days and applied to English filters at a normal rate, the effluent would be of satisfactory quality for one or two weeks, then it would become turbid, and towards the end of long freshets the effluent would sometimes be more turbid than the unfiltered water, due to the washing out of the clay that was stored in the sand layer from the earlier part of the flood. During such times there was a marked increase in the number of bacteria in the filtered water.

While this information has been gradually accumulating and crystallizing, public opinion has also changed with regard to both the appearance and purity of water which shall be satisfactory in the future. With the gradual appreciation by leading citizens of the fact that for twenty to thirty cents per capita annually it is possible to purify public water supplies so as to deliver an ample quantity of water which is pure, clear, and colorless, it is only a question of time when they will insist upon this step and stop the much greater expense involved in the purchase of spring water and house filters.

Concerning the successful purification of those highly colored or very turbid waters for which English filters, either alone or in connection with settling basins, have such marked limitations, it may be stated that as far as is now known it is necessary to make use of coagulation as one of the steps of the process.

COAGULATION OF WATER AS AN AID TO PURIFICATION.

Description.—The coagulation of water consists of the addition of some substance which will react with the water, and thereby bring about by means of adhesion and absorption an

aggregation of the suspended matters, and much of the dissolved organic matter, into relatively large masses of a gelatinous nature. The process is exemplified in a measure by the familiar action of the clarification of turbid coffee by the white of egg. In the case of very turbid or very highly colored waters, complete coagulation will give the water after it has stood for a time a more or less curdled appearance. With waters low in amounts of suspended matter and vegetable stain this appearance is rarely seen, although the same action takes place to a certain degree. Of the various coagulants which can be used for this purpose, experience thus far indicates that sulphate of alumina is the best.

When sulphate of alumina is applied in small quantities to water, it is decomposed by the carbonates of lime and magnesia. The carbonates of the bases are converted into sulphates in amounts proportional to the quantity of coagulant applied, and there is a corresponding amount of carbonic acid set free. The alumina is changed into a gelatinous precipitate of aluminum hydrate. At first these precipitated particles are very small, but they quickly aggregate into larger groups of particles. At the same time they envelop those matters suspended in the water, and also absorb dissolved organic matters such as cause vegetable stain. To appreciate fully just what the action can accomplish, one should see the curdled appearance which coagulation gives to a water heavily laden with clay particles having a size of about 0.00001 inch, or one-tenth the size of ordinary bacteria.

History.—Coagulation as an aid to the clarification of waters has apparently been known in a general way for centuries. Accounts of it have appeared in scientific literature for about seventy years. So far as can be learned, its application for municipal supplies dates from about 1880. In this country it is understood that coagulants have been used in a small way for household and industrial purposes for a great many years. But for municipal water supplies its use dates from 1885, although adoption was very scattering prior to 1895.

Adoption.—Sulphate of alumina has been used repeatedly to aid in the purification of Holland water supplies at Groningen, Gouda, Schiedam, Leuwarden, Delft, Alkmaar and Vlaardingen. The population of these cities aggregates more than 150,000. In this country coagulants are used in the treatment of the water supply of about 160 small cities and towns,

containing in the vicinity of 2,000,000 inhabitants. The consumption of water in all these places is not accurately known, but it probably amounts to 125 to 130 million gallons daily.

Laws.—Until very recently there was not much known in precise terms concerning the behavior of coagulants when applied to water, or the exact manner in which they accomplish their work. At present the fundamental laws controlling these matters have been sufficiently studied to enable one to apply this process, if needed, with confidence and success. With waters which are very difficult to treat, there are a number of points which need further study to place them on the most economical basis.

Efficiency and Safety.—Coagulation by itself is not a complete process for purifying water. It is simply an aid, serving as a preliminary or intermediate step to facilitate purification subsequently, either by subsidence or filtration, or both. Viewing the matter from a hygienic standpoint, it first may be said that sulphate of alumina is not a germicide, and bacterial purification is only facilitated by its use, due to the aggregation of the bacteria into relatively large masses, which can be removed more easily than the individual members. Relative to the question which one frequently hears, "Does not the use of a coagulant injure the quality of the water?" it may be stated that under no conditions whatsoever should coagulants be applied in such quantities that they pass in an undecomposed form into the filtered water. In other words, coagulants must not be applied in amounts exceeding that which can be decomposed by the lime and magnesia in the water. When the applied coagulant is completely decomposed, it may be stated in unqualified terms that no ill effects on this account will be met in the treated water. This is based on the most careful tests afforded by chemical science, and by the experience of years of from one to two million water consumers. In fact, the only change of significance which is produced in the water is the conversion of a small quantity of carbonates of lime and magnesia into the sulphates of these bases. This reduces the temporary hardness and increases the permanent hardness, but the total remains the same.

Cost.—Although the use of coagulants makes an important item of expense in the cost of purification, it is not a great factor in absolute terms. For an application of sulphate of alumi-

na at the rate of one grain per gallon of water, the cost of this normal quantity is about \$1.75 per million gallons.

Applicability.—With regard to the applicability of coagulation as an aid of purification, it is the consensus of opinion at present that it should not as a rule be used for those waters which can be satisfactorily purified without it. For those waters which are either very deeply colored with vegetable stains or very turbid, due to sub-microscopic clay particles, there is at present no way known of purifying them satisfactorily except with the aid of coagulation. This can be accomplished safely and economically. For those waters which are very colored or very turbid at occasional intervals and for short periods, the evidence as yet is not sufficient to allow sharply defined opinions to be expressed.

In those cases where coagulation must be employed in purification, it is optional whether it be used in connection with English or American filters. In Europe the former are exclusively used for this work, and in this country it is the latter. When English filters are used it is necessary to settle the water for at least twenty-four hours after the addition of the coagulant and before filtration. The reason of this is that the coagulated masses must be removed before filtration, otherwise the filter would be clogged almost immediately. With the other method this is not so.

AMERICAN FILTERS.

Description.—American filters are devices in which the raw water, in a suitably coagulated condition, flows through a layer of sand from three to four feet thick, at a rate of about 125 million gallons per acre daily. This rate is equal to about 120 gallons per square foot per hour, and to a vertical drop in the water level of about thirteen feet per hour. The individual filters are contained in cypress or steel tanks, from ten to twenty-five feet in diameter, or, where conditions require that they be operated under pressure, they are contained in steel cylinders of a size most convenient for the local conditions. On the floor of these tanks or cylinders is a large series of strainers, connecting with the main outlet pipe, and which serve as exits for the filtered water. As the coagulated water passes through these filters the sand layer of course becomes gradually clogged. The clogging is less confined to the surface,

however, than in the case of English filters, due to the higher velocity. When the filters become so clogged that it is necessary to clean them, the raw water is shut off and filtered water is pumped through them from below for five to ten minutes. The wash water enters the filters through the same strainers which serve as exists during regular filtration. As a rule, the washing of the filter is aided by agitation of the sand layer, either by means of revolving rakes or by compressed air introduced from below.

Comparing the American filter, as it has been recently developed for the purification of public water supplies, with the older rapid or mechanical filter used for the clarification and decolorization of industrial water supplies, it may be said that it is a higher grade device of the same general nature. The principal improvement, however, relates to the proper coagulation of the water as it enters the sand layer. This is the *sine qua non* of this method when applied to hygienic problems. With this filter there are generally required settling basins, coagulating basins, and other appurtenances for the operation of the plant.

History.—The American filter is the outgrowth within the past twenty years of improvements upon the industrial device, which was properly designated as a rapid or mechanical filter. Five years ago very little was known of it from the hygienic standpoint. Naturally it was not looked upon with favor by sanitarians. Judged from the fragmentary knowledge available to-day concerning its efficiency in practice, the same conservatism is necessary. From the results of extended investigations on a small scale, however, its efficiency now stands in a much more well defined and favorable light.

Adoption.—With regard to the purification of public water supplies, there is no instance among those European waters which are treated with coagulants where this type of filter is employed. On this side of the Atlantic the reverse is true. So far as my knowledge goes, there is no case here where filtration is adopted, together with the use of a coagulant, except in connection with a more or less perfected plant of this type of filter. As already stated, in the account of coagulation, there are about 160 small cities and towns now using these filters, and actually delivering upwards of 150 million gallons of filtered water daily. In addition to these places these filters are to be installed for the cities of Louisville, Cincinnati,

Paterson, and Passaic, having an aggregate capacity of 120 million gallons daily. Furthermore, they have been recommended for the purification of the water supply of Washington, and for about one-fourth of the supply of Philadelphia.

Laws.—Although it is less than five years ago that we had very little specific conception concerning the fundamental principles controlling this process, it may be now said that they are on a reasonably substantial and satisfactory basis. In the next few years they will doubtless be still further crystallized, particularly with reference to certain types of water about which comparatively little is known at present. Nevertheless, it can be now stated that the governing laws are sufficiently well understood to allow efficient plants to be put in service, provided that they are adapted to the local requirements in each case.

Efficiency.—When American filters are well designed, constructed, and operated, it may be said that they will give a hygienic efficiency as great as by any practicable purification process now known. The keynote to their efficiency is the proper coagulation of the water prior to filtration, and it is imperative that they should be managed at all times in accordance therewith. Concerning the popular views upon the question of coagulating chemicals, the subject has been already treated under coagulation. Through the use of a coagulant they have a very high efficiency in rendering waters clear and colorless.

Cost.—For waters which have only a slight or moderate color the American filter as a rule shows a total cost substantially the same as for English filters. For waters which are very turbid, or colored for a large part of the time, American filters are somewhat cheaper than English filters. The same is also true in some cases for all types of water, where their more compact size will obviate an extra pumping of the water, as would be the case with the other type of filter.

Applicability.—Speaking in general terms, the American filter is not strictly applicable for the fairly clear and slightly turbid waters which form a large proportion of the supplies in the glacial drift formation in the northern part of this country. This is based on the fact that coagulants should not be used if their use is unnecessary, and on the further fact that with some exceptions they would not be more economical than English filters. For the very colored or turbid waters of the

South and West they are not only cheaper, but they are more efficient and easier to manage. For waters of an intermediate class, there is not sufficient information available to allow us to make specific statements, other than for individual cases.

CONCERNING THE NEEDS OF THE BROOKLYN WATER SUPPLY.

It will be noted that of the two topics appearing as the title of this paper, the first one has received a rather lengthy review, and very little time remains for the second topic. Among the reasons for this is the fact that the past few years have seen rapid strides in our knowledge of water purification, and frequent reviews at length are required in order to set forth its current status. Referring to the Brooklyn water supply, its needs have received much careful consideration lately, not only from Brooklyn officials, but also in connection with the future supply of Greater New York from other hands. As you well know, there have been made public within the past two months two most admirable reports upon the future water supply of all Boroughs of Greater New York. The first of these reports was made to Controller Coler by Mr. John R. Freeman, the distinguished hydraulic engineer; and the second was made by the Merchants' Association of New York through a series of committees, including and having associated with them a number of the most prominent water-works engineers in the country. Both of these reports I would commend to your most careful consideration, not only as medical men, but as prominent citizens capable of rendering great good in moulding public opinion in a proper direction.

There are two phases of the question of the needs of the Brooklyn water supply. One relates to the needs of the immediate present, and the other to the enlargements and improvements required for the future. With regard to present needs, there seems to be no doubt from general knowledge that they are properly and adequately covered by the repeated demands of the Brooklyn Water Department as outlined to you this evening by Mr. Tuttle. Concerning the future needs, the reports already mentioned agree that for a reasonable cost the requirements of the future could be obtained either in connection with, or independent of, the Borough of Manhattan, from a number of sources. The reports also agree that such

extensive improvements could be properly made in the interests of the tax-payers only after thorough preliminary investigations and a detailed comparison of the relative merits and costs of the several proposed projects.

As to the character of the present supply, with reference to its need of purification, this will doubtless be taken up in full by Dr. Hill, based on his careful work three years ago for the Brooklyn Health Department. Since that time knowledge of this subject has materially increased through the work of the excellently equipped and ably manned laboratory of the Water Department at the Mt. Prospect Reservoir. Very unfortunately the reports from this laboratory have not been made public. Speaking in general terms, the low typhoid fever mortality in Brooklyn indicates that the water supply is comparatively free from infection, as judged by the current American experience and standards. Judging it by the mortality records of leading cities in Europe, and which in a short time will not be more exacting than will be demanded in this country, the Brooklyn water supply is not now as pure at times as could and should be the case. This appears to be due to the pollution of a few of the numerous sources of the Brooklyn supply. Other than in its hygienic character the quality of this water is not uniformly satisfactory, as there are times when it possesses too much color, turbidity, taste, and odor. There is no room for doubt that satisfactory purification plants should be installed for those portions of the present supply which show signs of distinct pollution, as well as for those bodies of polluted water which must be added to the present supply to provide against a water famine. This can all be accomplished at a moderate cost, and should be done without delay.

Referring to the question of purification in connection with the future water supply of Brooklyn, it may be stated that all surface water should be purified in order to provide a satisfactory supply. Beyond this there is little to be said at this time, in the absence of needed specific data. Professional opinion seems to be unanimous that the entire problem of the future supply of New York in all its phases should be thoroughly investigated in detail at once. This recommendation of Mr. Freeman to the Controller, and also of the Merchants' Association, is sound and timely, and the interests of the community demand immediate action in this direction.

SANITARY CONDITION OF THE BROOKLYN
WATER SUPPLY, BASED ON WORK OF THE
ROCKVILLE CENTRE LABORATORY OF THE
BROOKLYN HEALTH DEPARTMENT, 1896-97.

BY HIBBERT WINSLOW HILL, M.D.,
Director Boston Board of Health Bacteriological Laboratory.

Coming from Boston as I do, you must pardon me if I am first at some pains to describe to you my relation to the question under discussion. Briefly it is this: In the autumn of 1896 Dr. Emery, then Commissioner of Health, appointed me Biologist to the Brooklyn Health Department, and placed me in charge of the laboratory, then just established, for the sanitary supervision of the watershed. The establishment of this laboratory had been advised by Dr. Wilson some twelve months earlier. The site of the laboratory was selected finally, and the outline of the work was planned by Dr. Wilson in consultation with other chiefs of bureaus before my arrival. The work contemplated in these plans involved continuous analyses, chemical, microscopical, and bacteriological, of numberless samples from each source of supply on the watershed. In this way it was hoped to accumulate, in the course of time, a mass of data on the Brooklyn supply comparable, in a measure, with that accumulated on the Massachusetts supplies by the Board of Health of that State. This admirable design was carried out for only ten months, owing to the abolition of the laboratory immediately after consolidation. Fortunately these ten months included such wide variations of meteorological and other conditions that their results may be regarded as fairly representative. Besides these analyses, systematic inspections of the ponds were made. We followed each feeder, also, to its source, examining and recording the conditions found. The diagrams of nuisances, etc., thus collected were never published, since we devoted to the analytical results all of the ten weeks allotted to the compilation of the report. We were directed also to determine the source of the odors and tastes which had given rise to so much annoyance and discomfort in Brooklyn.

The microscopic and bacteriological division of this work was in my hands from the first. The chemical work was performed during the earlier months by an assistant chemist,

detailed from the Health Department in Brooklyn and responsible directly to the Chief Chemist of that Department. Later on, however, the whole of the work was placed in my charge and Mr. J. W. Ellno of the Massachusetts State Board of Health Laboratory was secured as chemist. To his faithful work in the laboratory, and to his earnest co-operation in the compiling of data, the final report owes much.

I need refer only briefly to the bitter opposition which the laboratory met with from various quarters. Some of you will perhaps remember the, to us, rather stormy six months during which the city Fathers, for reasons best known to themselves, held up our appropriation—yielding only in the face of mandamus, and even then with the worst possible grace. At times the mere existence of the laboratory depended solely on the strong will of the Commissioner of Health. Notwithstanding this opposition, the work was done and the report completed and published, and it is noteworthy that, with the exception of certain brief reports on the odors, our report was, and is, the only approximately complete one, dealing with the condition of this watershed from the analytical standpoint, that has yet appeared.

I must pray your patience further while I review the condition of affairs on the watershed existing just previous to my appointment in the autumn of 1896. It will be remembered that the odors and tastes of the Brooklyn water during the preceding summer had been exceptionally bad. In August the Commissioner of Health directed that preliminary inspection and analyses of the various sources of supply be made by a commission from the Health Department, consisting of Drs. Wilson, Bartley, and Hutchison, together with the Chief Chemist and an engineer. The results were published in the *Brooklyn Eagle* of September 9th. The commission attributed the odors and tastes to vegetable organisms, living and decomposing in the ponds, reservoirs, and distribution system of the supply, and stated that nothing of a distinctly harmful nature had been discovered, but that the conditions on the watershed were such that at any time danger to the health of Brooklyn might arise. Dr. Wilson, to whom the microscopic examinations were entrusted, called particular attention to the presence of the diatoma *asterionella* in the Ridgewood Reservoir, Basin No. 2, and pointed out its odor-producing abilities. On September 14th of the same year Dr. Leeds, who had been

commissioner by the Engineer of the Water Department on September 1st to examine into the same question, made a report, which was not, however, published, so far as I am aware, until nearly a month later. The reports of the Health Department Commission and of Dr. Leeds were in accord as regarded the presence in the water of living and decomposing vegetable organisms, in their wide distribution, in ascribing the origin of the odors and tastes to them, and in denying their immediate capacity for danger to the health of Brooklyn. The Health Department Commission had, as already stated, incriminated the ponds of the supply as in part responsible. Dr. Leeds was especially emphatic in the statement that the waters of the shed possessed these objectionable odors before they reached the reservoirs. Although the subsequent investigations of Mr. Whipple, working with Dr. Leeds, during the winter of 1896-97, and my own independent investigations later on both confirmed the suggestion of Dr. Wilson that the *asterionellæ* in the reservoirs at Ridgewood were responsible for the odors at the time of our respective examinations, and although both Mr. Whipple and myself failed to find odors of any moment in the ponds during the same periods, it would appear from the reports of these previous investigators that during the summer of 1896 the ponds were, in part at least, responsible for the trouble, whatever may have been the conditions afterwards. The odor question has been so fully expounded since 1896 that it is scarcely necessary to describe again the causes and conditions of its development in the reservoirs. The storage of ground waters exposed to light has long been known to afford one of the best environments for the growth of certain microscopic organisms other than bacteria. That this condition obtains at Ridgewood is a matter of common knowledge. We described in our report the only methods which will prevent the growth of these organisms at Ridgewood—the covering of the reservoirs to exclude light or the avoidance of storage of ground waters there altogether by pumping directly into the city supply. The former would be difficult and expensive; the latter, now possible since the construction of the by-pass begun in '97, has proved successful at those times when it has been feasible to put it into practice. Although I am not personally familiar with your experiences here since 1897, I may presume that the present discussion in itself is evidence that these experiences have

not been happy. For the remedy of the trouble I can present to you no other alternatives than we presented to you three years ago. If filtration with aeration or oxygenization were attempted, the removal of the odors might be accomplished, but the filtered water would require storage in covered basins or direct pumpage quite as much as does the ground water at present.

Turning now to the sanitary aspect of the Brooklyn water supply, I must be permitted to quote further from our report. In that report we classified the surface water of the supply, consisting, as you know, of a chain of small ponds extending eastward from Twin ponds to Massapequa along the line of the southern division of the Long Island Railroad, into four groups—safe, reasonably safe, questionable and unsafe, for drinking purposes—depending on the absence or presence and the amount and character of the pollution from inhabited areas which we detected in them. Thus the “safe” ponds, roughly those east of East Meadow pond, showed little or no pollution of this kind at all. Increasing in degree as the western end of the shed was approached, the pollution of the four ponds from Valley Stream reservoir to Twin ponds was sufficient to condemn them. Baisley’s pond had been previously shut off and Springfield pond was shut off during our laboratory term, leaving in service only three of the condemned ponds—Valley Stream reservoir, Clear Stream pond and Twin ponds—not more than 6 per cent. of the whole supply. From East Meadow pond to Hempstead storage reservoir, constituting about half the total supply, the evidences of pollution were such that while the ponds could not be absolutely condemned, an unqualified endorsement of their use could not be accorded. Hempstead storage reservoir, it is true, received the contents of Horse brook, which drained the village of Hempstead, a highly polluted stream, but the dilution and the changes which occurred in the reservoir resulted in yielding at the outlet of the reservoir a water less impure than that of the western ponds. The construction of a by-pass to divert this feeder from the supply was begun in 1897, and is now supposed to be in service at those times when the wasting of Horse Brook can be allowed without the danger of a shortage resulting. Five years ago the Health Department advocated the filtration of this feeder. Such filtration would combine economy of the supply with continuous and adequate sanitary protection.

This still remains the most feasible of the methods for patching up the supply, which may be recommended until palliative measures can give way to more complete and radical changes. Such filtration, if the effluent is turned into the pond, may result in producing at Hempstead the growths similar to those now found at Ridgewood. In view of this possibility the filtered water should be turned into the conduit or stored under cover and then admitted directly to the conduit. It must be understood that in classifying the ponds of the supply on the basis of the pollution they presented, our evidence for the classification rested on actual inspections, as well as on chemical and bacteriological examinations continuous during the ten months of our work. It is perhaps well to explain our use of the term "pollution" and to distinguish between "harmless" and "harmful" pollution as well as between actual and potential harm. In one sense any addition to the water of substances in excess is pollution. In this sense almost all surface waters and many ground waters are polluted—with vegetable coloring matter, for instance, with iron, with salts or with the presence of large numbers of minute organisms. In the sanitary sense, however, the sense in which we used the term pollution of a supply means the addition to it of foreign substances, waste products of human life and industry, as Drown puts it—in short—of what is commonly termed sewage. Such pollution may or may not be actually harmful. It is a question whether diluted sewage other than that from certain manufactures and containing chemical waste products in poisonous amounts can be demonstrated to be, in itself, directly harmful, however disagreeable, unless it contains the discharges of persons sick from typhoid, cholera, or other water-borne diseases. Still less can this be demonstrated for the discharges from domestic animals. Pollution of this nature, once demonstrated, must be further considered for evidences of the presence of infection with one of the water-borne diseases, which may exist, before decision is reached as to actual danger. The potential danger increases in proportion as the pollution with human waste products is the more direct, recent and abundant. It decreases in proportion as the pollution is indirect, old or small in amount. This potential danger can be detected by analytical methods. Actual infection of a supply can, unfortunately, but rarely be determined except by observing the deposit in the

supply of, say, typhoid discharges, or by the examination of the typhoid death rate among the consumers. Human sewage effluents may at any time receive typhoid discharges, hence it is that the detection of sewage in a supply is now universally regarded as sufficient evidence of potential danger for its condemnation. We are not likely to discover the infection by observing the entry of typhoid discharges into a supply, nor do we wish to wait until the demonstration of infection can be made from the typhoid "kill of mortality." But a supply of the greatest possible potential danger will do no more actual harm than a supply of the smallest potential danger until, and unless, the potential danger becomes actual—until the facilities provided for the reaching of the consumer of healthy discharges are in actual service for the discharges of, say, typhoid cases. Cities may tolerate for considerable periods a supply thus grossly polluted, but sooner or later the potential danger is converted into actual, or the small actual harm becomes exaggerated, as bitter experience in Philadelphia has recently reaffirmed.

I will not attempt a full review of the actual analytical figures obtained by us, nor a full description of the fauna and flora of the different ponds. Any one interested may consult our report for these. I may, however, refer to certain of their general features. Thus: the chlorine content of the surface waters increased from east to west—that is from the unpopulated to the populated end of the watershed—being .59 parts per 100,000 at Massapequa and .81 at Twin ponds. The normal for this region lies between .5 and .6. The average bacterial count for Massapequa was 567 colonies per c. c. The average for Twin ponds was more than ten times as many or 6,974. The highest counts for Massapequa were obtained during the heavy rains of July when the organic matter derived from the surrounding swamps was at its maximum and the color correspondingly high. Thus: for the average fair weather period the average count for Massapequa was 350; during the heavy rains the average was 1,320. At Twin ponds the rainy period had exactly the reverse effect. Thus: the average for good weather was 7,700 bact. per c.c.; for the rainy weather about 1,600, doubtless due to dilution of the organic matter usually reaching the supply by the additional rain precipitated. In general it was true for the Brooklyn watershed in 1897 that heavy rain increased the bacteria in

unpolluted ponds while diminishing them in the polluted ones. Nevertheless the general run of the counts on the unpolluted ponds was much lower than that on the polluted ones. Thus: Massapequa yielded only 10 per cent. of the total number of counts above 1,000 colonies, while at the western end of the shed Valley Stream reservoir yielded 35 per cent; Twin ponds 57 per cent. and Clear Stream 73 per cent. of counts above 1,000, the same number of counts being made from each pond.

The driven wells of the supply from Forest Stream to Massapequa yielded very low bacterial counts and low chlorine, while the chlorine west of that point was high reaching at times 28 parts per 100,000. The high chlorine in this section of the shed was due in part at least to infiltration with sea water and accounts for the water at Ridgewood presenting an average chlorine content higher than that obtained from any one of the surface waters. But it is weariness to the flesh to attempt to lay before you in detail figures, the true meaning and value of which can only be arrived at by careful consideration in the quiet of one's own study. I believe and you, doubtless, will agree with me, that the recommendations for the remedy of the conditions outlined are of more immediate interest.

As summarized in our report our recommendations were as follows in the order somewhat of their admissibility.

I. To suspend the use of the decidedly polluted ponds. These were Valley Stream reservoir. Watt's pond, Clear Stream pond and Twin ponds. Springfield pond, Baisley's Pond, having been shut out, it was sufficient to recommend that the water should not be readmitted unless filtered.

II. The abatement of nuisances and rectification of unsanitary conditions at all other points.

To some extent this has been carried out. The privies which were distributed along certain of the feeders, for instance, twenty-one within 200 feet of the feeder of Twin ponds, have been converted into dry earth closets. This is a palliative method at best, depending at all times for its efficiency on the care of the people not directly interested in the supply; yet it is the only immediately available one if the ponds cannot be shut off or filtered or the nuisances suppressed entirely. The stables, pig-pens, fowl yards, etc., no doubt remain now as they were then—certainly there has been no wholesale cleaning up of the numerous little water-

sheds along the feeders of the supplies. Nor under the existing circumstances can this be expected. To take watersheds by right of eminent domain, as has been done by certain other cities, seems out of the question for Brooklyn. Short of this only patchwork reforms can be looked for at present, and such patchwork reforms are applied ordinarily only to the most marked instances of evil. Then, too, there is the greatest opposition to the interference of any kind from the dwellers along these feeders, an evidence healthy enough, it is true, of Anglo-Saxon independence, but not calculated to raise the enthusiasm of the earnest sanitarian.

Our third recommendation was that the unpolluted sources of supply should be preserved in their then condition. Otherwise so long as the tide of suburban life on Long Island continues to set toward the east, so long will it remain only a matter of time before the sanitary condition of the eastern ponds becomes a thing of the past. To whom belongs the power to prevent increasing settlement on these watersheds I do not know. Perhaps the power itself has not a legal recognition. Yet if such power is not exercised, and that soon, these good ponds will become Twin ponds and Baisley's. We advised further a strict sanitary supervision of the population of the water-shed in the matter of typhoid fever. In our time no power resided in the hands of the Health Department to do this officially. It is true that we attempted—I believe that the City Works Department also attempted—to discover such cases, to disinfect the closets, and to take other general precautions. Again this was a patchwork, again it was inefficient, and again it was the best that could be done under the circumstances. We had no legal right to do it, no official system for the reporting of such cases by local boards of health, physicians or householders to those in charge of the water supply existed. It is a question how regularly cases were reported to the local boards of health of the towns and villages themselves. It is well known, also, that with the most conscientious reporting some cases may be overlooked through mistaken or doubtful diagnosis and that with the most accurate diagnosis the harm may have been done before the physician is called in. Fortunately for the health of Brooklyn the health of the watershed inhabitants, as regards typhoid, was good in our day and presumably remains so.

Although we advised the abandonment of the polluted sup-

plies as the most ready and economical method, we offered also the alternative of filtration for the decidedly polluted ponds or of the whole of the surface waters, if the driven-well supply could not be developed or extended to replace the polluted waters, or even all the surface waters. A supply pure in origin is to be preferred to a polluted supply subsequently purified. But, so far as the problem of microscopic organisms is concerned, it must be remembered that a filtered surface water acts much like a ground water. From this standpoint the filtration of the surface waters would be equivalent, or nearly so, to an extension of the driven-well supply. In other words, the sanitary problem may be thus solved, and the odor problem will become more pressing, if anything. Filtration of the feeders of the polluted ponds, being the effluent then into the ponds themselves, would encourage in these ponds microscopic growths. Filtering the pond waters at their outlets and turning the waters freely into the conduits would simply increase the proportion of water fit for microscopic growths at Ridgewood, necessitating covered reservoirs or direct pumpage, as at present. The only other plan that has suggested itself to me satisfactory from both sanitary and esthetic standpoints would involve an additional conduit solely for driven-well water, the filtration of all the surface waters together at some point west of Baisley's pond and the storage of both ground and filtered water in covered basins: or the direct pumpage of both without storage. Failing the accomplishment of some one of these combinations a new supply outside of Long Island is necessary.

Our final recommendation has been the most thoroughly carried out of all—not indeed by the Brooklyn authorities, nor, alas! because we advised it. The Merchants' Association of New York and Mr. Freeman, acting under the instructions of Mr. Coler, have accomplished much of the work that we suggested—which was: that the whole question should be further investigated; that all the available evidence should be collected and placed in the hands of an expert or committee of experts; that a systematic, comprehensive and economical plan based on this evidence should be devised. It must not be supposed, however, that the Brooklyn supply needs only a continuation of the patchwork tinkering of past years. The patching up should not be neglected—indeed it is vital for the present, but the future, and the near future at that, demands radical

action. Admirable as the work of the Merchants' Association and the work of Mr. Freeman have been in the matter of accumulating data and giving advice more is needed.

The most eminent experts in this country should be consulted and a commission be appointed from their numbers. They should be provided with the financial and legal requisites for carrying out such experimental work as previous investigations and the present needs of the supply show to be necessary, and proper appropriations should be made to permit the carrying out of the plans they may propose. Then those plans should be actually carried out.

The general problems of the quantity of the supply require engineering knowledge of a high order, but there are also problems of biological and chemical importance which must be fully solved, therefore the men to whom this work is intrusted should include engineers, chemists, biologists and sanitarians. The problems must be solved by grappling directly with them on the spot. After all there are only three courses open. Brooklyn is by no means alone in facing these three choices—every city in the country dependent wholly or in part on surface water supply must select from them sooner or later as population increases. The watersheds of every surface water supply must be maintained in a condition free from pollution, which is only practicable by maintaining them free of population. If the population and pollution cannot be prevented the water itself must be purified by filtration in some form or a new and unpolluted supply must be secured. If more than one of these courses be open then the most efficient and economical should be selected.

I have been the less diffident in quoting so largely at the present time from a report of the conditions and the needs of the supply as they existed three years ago because the present conditions and needs are practically the same as they were then. Our report was, so far as careful and conscientious work could make it, a reliable account of the water supply in 1897. Accurate engineering data would have been of value to us, but were not at our disposal in any great detail. Our functions, however, did not lie in the solution of engineering problems, it would be presumptuous for me to attempt them now. I can say, however, that the present condition of the Brooklyn supply should not be tolerated as regards its sanitary condition or its odor-exhaling properties at times, and

that either the present waste, which, according to Freeman, amounts to one-half the total daily supply, must be reduced or the present supply must be increased. When the worst comes to the worst it is more essential that a given supply should be sufficient than that it should be pure—within limits, of course—but it is a great pity that a great city, a city which has not sprung up in a night, a city where warnings from the Water Department, from the Health Department and from other reliable sources have not been lacking, where foresight and prudence might have been expected to rule—it is pitiful that at the beginning of the twentieth century such a city should be compelled to choose between pollution of the supply or shortage, yet this is the present condition in Brooklyn, not in Brooklyn alone, it is true. It is not that the coming of this inevitable choice has been unforeseen—it is hard to believe that being foreseen it should not be guarded against. I am not underestimating the difficulties which would have had to be met in past years—but delay has not rendered them simpler or more easily managed. It is now, of course, useless to bewail the past except in so far as it may be necessary to furnish a stimulus for the present. The enormous uselessness of the Milburn reservoir, into which might have been poured the waste waters of the purest part of the supply, is now but a sad reminder of what might have been. Additional conduit facilities, additional pumping facilities were required in 1897, and the demand is more pressing now. The need for a water-tight reservoir at Milburn was apparent then, it cannot be less needed now. True, if water-tight the Milburn reservoir might need to be covered if used for the storage of the ground waters of the eastern watershed, to prevent the growth in it of microscopic organisms reasonably to be expected under such circumstances. If used for ground water only, its proper function, this would be unnecessary. These changes will be expensive and would be, even when complete, only a putting off of the evil day; but that they are essential if the present demand is to be supplied from the present sources we have the best authority for declaring. Mr. Freeman holds that the ground waters of Long Island may be developed further than at present to the benefit of Brooklyn and without detriment to the outlying districts. This is a matter for experimental determination; failing this, either from engineering difficulties or from legal restrictions, there remains

only available the securing of an adequate supply outside of Long Island. Of the available supplies the Hudson itself, filtered and stored, if stored at all, with due regard to the possibility of vegetable growths would appear from these reports to be the most promising. The enormous problem involved, however, it gives me pleasure to think, depends for its solution on other heads than mine.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, Tuesday, March 19, 1901.

The president, William Browning, in the chair.

There were about 100 members present.

The minutes of the previous meeting were read and approved.

The secretary announced that the following gentlemen had been appointed as associate members of the membership committee:

Dr. W. N. Belcher,
Dr. Bruce G. Blackmar,
Dr. Eugene P. Hickok,
Dr. Henry T. Hotchkiss,
Dr. Jno. O. F. Hill,
Dr. Sewall Matheson,
Dr. Ralph L. Pomeroy,
Dr. Bernhard Stern,
Dr. Henry Wallace.

REPORT OF COUNCIL.

The council reported favorably upon the following applicants:

John D. Shea, P. & S. N. Y., 1896.
Addison Raynor, P. & S. N. Y., 1893.
Elijah L. Bruen, L. I. C. H., 1899.
Edward L. Parker, University of Syracuse, 1896.
Joseph Meyer, P. & S. N. Y., 1877.
John M. Callendar, University of Virginia, 1896.
H. S. Shlevlin, Yale, 1892.

P. F. Hogan, University of Michigan, 1872.
C. A. Van Urff, L. I. C. H., 1899.
Joseph D. Hall, N. Y. Univ., 1887.
Chas. R. Jenkins, L. I. C. H., 1899.
John F. Davis, Bellevue, 1894.
Frank H. Knight, P. & S., 1899.
James H. B. Dowd, L. I. C. H., 1900.
R. F. J. Hussey, L. I. C. H., 1894.
Tracy E. Clark, L. I. C. H., 1900.
E. M. Bullwinkle, L. I. C. H., 1898.
Fred J. McCammon, Queens College, 1892.
James Watt, L. I. C. H., 1900.

APPLICATIONS FOR MEMBERSHIP.

John A. Shields, 573 Lafayette Ave., P. & S. N. Y., 1898.
Nominated by Walter C. Wood, seconded by O. A. Gordon.

Marion Apfel, 331 South Seventh St., Univ. N. Y., 1892.
Nominated by H. P. de Forest, seconded by Geo. W. Colby.

Frederick A. Cook, 687 Bushwick Ave., Univ. N. Y., 1890.
Nominated by H. P. de Forest, seconded by Geo. W. Colby.

Thomas S. Patterson, 87 William St., L. I. C. H., 1890.
Nominated by W. J. Elvenhey, seconded by W. J. Lyons.

Thos. S. Segelcke, 72 Fort Greene Place, L. I. C. H., 1898.
Nominated by Membership Committee.

Richard A. Shields, 92 Sands St., L. I. C. H., 1890. Nominated by Membership Committee.

William H. Taylor, 714 Lafayette Ave., L. I. C. H., 1899.
Nominated by Sidney H. Gardner, seconded by David Myerle.

E. W. Victor, 176 St. James Place, Univ. State N. Y., 1875.
Nominated by J. P. Warbasse, seconded by W. G. Reynolds.

Warren L. Duffield, 338 Lafayette Ave., L. I. C. H., 1898.
Nominated by Warren S. Simmons, seconded by A. T. Bristow.

Charles A. Bailey, 794 Putnam Ave., L. I. C. H., 1898.
Nominated by H. A. Fairbairn, Warren S. Simmons, Jr.

Murrett Fauquier De Lorme, 340 Jay St., L. I. C. H., 1900.
Nominated by Membership Committee, seconded by Dr. E. H. Bartley.

John J. Collins, 1268 Bergen St., P. & S., 1898. Nominated by J. S. Waterman, seconded by W. C. Wood.

George John Wardenburg, 144 St. Marks Ave., Col. P. &

S., 1896. Nominated by George McNaughton, seconded by William Browning.

ELECTION OF MEMBERS.

The following having been regularly proposed and favorably reported upon by council, were declared by the president elected to membership:

Walter T. Slevin, L. I. C. H., 1898.
 Justus L. Bulkley, Jr., Syracuse Univ., 1900.
 E. F. Lindredge, Bellevue, N. Y., 1875.
 Cornelia A. McConville, Wom. Col. N. Y. Inf., 1894.
 Harlow E. Dunton, Vermont Univ., 1877.
 Peter A. Requa, Univ. Vermont, 1896.
 Grace D. Ives, Wom. Col. N. Y. Inf., 1898.
 Geo. L. Stivers, L. I. C. H., 1899.
 Charles E. Gardiner, L. I. C. H., 1899.
 Thomas E. Pineo, L. I. C. H., 1898.
 C. F. Buckley, P. & S. N. Y., 1898.
 Fred J. Kirk, Queens Col., Can., 1892.
 John C. Medd, L. I. C. H., 1896.
 J. H. Moore, L. I. C. H., 1874.
 Wm. A. Myers, Univ. N. Y., 1888.

The president announced the death of Dr. James Byers Warden on February 22d, and Dr. John Barnard Busted, on March 11th.

SCIENTIFIC BUSINESS.

THE SCOPE AND SUPPORT OF HOSPITALS.

1. "City versus Independent Hospitals." Dr. J. T. Duryea.
2. "The Advantages to the Public and to the City of the Non-Municipal Hospital." Dr. John Harrigan.
3. "On Church Hospitals." Dr. A. C. Bunn.
4. "Municipal as Compared with Private Care of Infants and Children." Dr. W. H. Hutchinson.

Discussion by Drs. A. S. Ambler, Walter C. Wood, Mr. Henry W. Maxwell, J. T. Duryea and John Harrigan.

MISCELLANEOUS BUSINESS.

The secretary reported that the council recommended the acceptance of the resignation of Dr. R. T. Briggs, and on motion Dr. Briggs' resignation was accepted.

The secretary also reported the same recommendation as to the resignation of Dr. Frederick S. Hallett as corresponding member, and on motion Dr. Hallett's resignation was accepted.

The secretary reported the receipt of an acknowledgment from the Water Department of Brooklyn of his communication transmitting the conclusions and recommendations of the committee on public health on the water supply, with the statement that the department will investigate the matter thoroughly and give the same due consideration.

A communication was presented from the Section on Pediatrics in reference to the granting of certificates of vaccination, on which children could be admitted to the public schools, by certain physicians in Brooklyn, on the simple statement of the applicant that he had taken one or more doses of a tablet triturate said to possess the property of creating an immunity to the infection of smallpox.

On motion, this communication was referred to the committee on public health for investigation and report.

The secretary reported that the council recommended that the following declaration be regularly printed on the back of the folder notice of meeting:

It is contrary to the dignity and interests of the medical profession for any member thereof to affix his name to any certificate, circular, or advertisement of any drug, nostrum, mineral water, wine or other proprietary article intended to be used as a medicine or remedy in disease, or to any patented instrument or appliance that is intended for medical or surgical use.

It is equally derogatory to professional character to publish cases and operations in the daily prints, or to suffer such publications to be made.

On motion, duly seconded, this recommendation was adopted.

A communication was received from the Medical Society of the State of New York in reference to a change in their constitution and by-laws, for the purpose of increasing the facilities for delegates to become permanent members of the society—permitting each county medical society to send to each annual meeting of the State Society not exceeding five delegates for each Assembly District, instead of one as here-

tofore; the present rules to obtain as to such delegates becoming permanent members.

On motion, this communication was referred to the council.

The Secretary requests that the following names be added to the list of active members, published in connection with the report of the annual meeting, omitted in error:

Eugene W. Candidus, 215 Hewes street.

John H. Coverly, 191 Washington Park.

On motion, adjourned.

DAVID MYERLE, *Secretary.*

BROOKLYN GYNCOLOGICAL SOCIETY.

FREDERIC J. SHOOP, M.D., EDITOR.

Stated Meeting, Friday, October 5, 1900.

Program:

PRESENTATION OF SPECIMEN OF FIBROMA OF UTERUS.

By Edgar Arthur Day, M.D.

PRESENTATION OF SPECIMEN OF PYOSALPINX OCCURRING IN A VIRGIN.

RELATION OF A CASE FOR DIAGNOSIS, WITH SPECIMEN.

By John O. Polak, M.D.

FIBROMA OF UTERUS, WEIGHT FOURTEEN POUNDS.

By Edgar Arthur Day, M.D.

This tumor was removed last Saturday from a woman 52 years of age.

She celebrates her silver wedding to-day, having been married twenty-five years.

She has borne two children, the younger being 17.

The patient enjoyed good health until about three years ago, when she noticed a protrusion of the posterior vaginal wall.

One year later she became aware of an increase in her abdominal proportions and health then began to suffer slightly.

Her digestive functions were disturbed and she became somewhat emaciated.

During the early part of the present year she became quite

feeble. The past summer was spent among the mountains, with good results.

The tumor was carried with comparative ease and comfort, and just previous to the operation the patient declared that she felt very well, indeed.

Upon cutting down through the median line the tumor was everywhere apparent and the intestines not to be seen. Adhesions were not numerous. The growth was quite vascular, bleeding freely when incised and showing large vessels upon the surface.

The tumor is an irregular mass, consisting of a large central portion, to which are attached by broad bases a number of lobes of varying size. One large lobe was in contact with the liver above, while a smaller lobe had pushed its way down behind the uterus and right broad ligament, and between the rectum and vagina, protruding the vaginal wall in the fashion of a huge rectocele. After two or three extensions of the original incision, an opening was obtained sufficiently large to permit the upper and larger portion of the tumor to be shelled out. The hand was then pushed down back of the lower portion of the tumor and with much difficulty the lobe lying deep in the pelvis and back of the vagina was extracted.

Beginning with the left broad ligament the tissues were tied off and severed from the uterus. Next, the cervix was cut across and closed up with sutures and, finally, the right broad ligament was treated as the left had been, except in reverse order.

The abdominal cavity was flooded with many quarts of hot saline solution, which served not only to cleanse the cavity but to stimulate the patient, whose vitality had flagged seriously. Three or four quarts of the fluid were allowed to remain in the cavity.

The patient rallied promptly and seems to be making a good recovery.

The tumor weighs fourteen pounds and was attached to the lower posterior portion of the body of the uterus, the attachment extending an inch down the elongated cervix and three-quarters of an inch along the right broad ligament.

SPECIMEN: PYOSALPINX OCCURRING IN A VIRGIN.

By Dr. John O. Polak.

It is of particular interest because it brings out the point that virgins do have pus-tubes and that they may be of large size, without producing symptoms referable to menstruation, and may

be passed unnoticed by good men for several years. The patient was twenty-five years of age, living with her sister, and doing light housework. She began menstruating at the age of sixteen, was always regular, menses lasted three or four days, were scant, and attended with but little pain. For two years she had intermenstrual pain on the right side, which coursed down the sciatic nerve; it was characteristic of the pain that it always came on once in twenty-four hours; the pain was at times excruciating; it came on at the same time during each twenty-four hours, with a marked periodicity. The patient was well nourished and had been treated for sciatica. Several examinations had been made without satisfactory result. Being a Jewess and a virgin, a rectal examination was made, which revealed the tumor which I present. This tumor was found in the right side of the pelvis. An operation was done and a pus-tube the size of a small yellow squash found in the posterior cul-de-sac, and free in the abdominal cavity. On the other side a smaller pus-tube was found, which was very adherent. The uterus was small. There had been no leucorrhea. There had been no symptoms referable to the menstrual period. But these periodic attacks continued during the inter-menstrual periods. Another interesting point was the great rigidity of the abdominal walls; I have never before seen an abdominal wall where the divided fascia could not be brought together under complete anesthesia. In this instance I used chromicized catgut for sutures in the fascia, which were reinforced by through-and-through silkworm gut, and yet the divided fascia could not be brought together satisfactorily. Another interesting point in the case was that although no pus was spilt in the abdomen, this girl went through a process of suppuration unlike anything seen in my operative work. In the first place, the wound broke down and there developed a cellulitis in both broad ligaments, followed by a fecal fistula. Her recovery was tedious but complete. Great care had been used in this case; the tube was excised after the method of Martin; there seemed to be no infecting focus, and the catgut used was the same I have used for many years. The fecal fistula did not occur until seven weeks after the primary operation. The patient was operated upon on Thursday; on Friday the temperature was 104.5° . The fever continued for over ten days; at the end of which time, by vaginal examination, the cul-de-sac was found to be free, but both broad ligaments were dense, the exudate on the right side extending to the umbilicus. A posterior sec-

tion was made on the fourteenth day and as the opening was made into the exudate, pus poured out. If a syringeful of sterile water was injected into the abdominal wound it came out of the vaginal wound. This condition continued for two weeks. The fecal fistula developed upon the left side. The left tube was the adherent one, but it was not adherent to any of the intestines. The right tube was not adherent.

A CASE FOR DIAGNOSIS.

Dr. Polak also presented a specimen of a fibroid the size of an orange. The patient had been treated for a long time for a retroflexed uterus. A myomectomy was done and the specimen removed illustrated the need of more careful diagnosis.

DISCUSSION.

Dr. L. Grant Baldwin said that he had never seen a tumor like the one presented by Dr. Day except where it had its origin in the broad ligament. He thought this exemplified the point that one could not always tell what was to be dealt with even when the abdomen was opened. He believed this was a sub-peritoneal growth, becoming pedunculated. It was certainly an interesting specimen occurring in a woman who had passed the menopause, thought to be the safety point. The woman was supposed to have passed the menopause and there had been no hemorrhage or pain, and yet there was a tumor which was a menace to her life. The idea taught that these tumors, if carried well until the menopause, would be all right was bad. This tumor had undergone cystic degeneration; when inflammatory processes had set up it became a menace to her life.

Dr. Chase stated that he failed to find evidences of an intra-ligamentous tumor. He thought it might have sprung from the broad ligament or that portion of the uterus near the cervix. He considered the specimen to be quite interesting; just what the microscope would show he did not know, although he would be inclined to believe that it was a fibro-cystic growth; yet he had seen tumors in other parts of the body which had been diagnosticated cysts which were found to be lipomas. He did not believe that these growths should be allowed to reach such a large size before removal, as there was such a large element of risk in their removal.

He then referred to a case of ruptured tube in ectopic gestation upon which he had operated. The patient asked to go home

at the expiration of three weeks, seeming perfectly well, but remained in the hospital two weeks longer, at which time trouble developed in her left broad ligament. (The ruptured tube was on the right side.) A phlegmon occurred that filled up the whole iliac space, extending nearly to the umbilicus. This pus cavity was incised and drained, and a culture was made from the fluid obtained; this fluid contained bacilli coli communis.

Dr. McNaughton stated that as the pus-tube in Dr. Polak's case occurred in a virgin, and as the patient had been sick a long time, and a fecal fistula had occurred after the operation, it looked like a tubercular case. He strongly suspected tuberculosis.

Dr. Hyde said that, in cases of pus-tubes in young unmarried people, he took a great deal of interest in trying to find out whether they had had scarlet fever in their earlier days. The exanthemata acted upon the mucous membrane of the tubes, upon the ovaries, and on the mucous membrane of the kidneys. He was perfectly satisfied that he had had cases of pus-tubes primarily referred to the poison of scarlet fever.

THE BROOKLYN PEDIATRIC SOCIETY.

WILLIAM A. NORTHRIDGE, M.D., EDITOR.

Regular Meeting, October 14, 1900.

The President, Dr. Henry N. Read, in the Chair.

The scientific program for the evening consisted of a paper by Dr. C. L. Kerr, on the treatment of whooping-cough, including the use of rectal injections of carbonic-acid gas. The doctor stated that innumerable drugs had been used in the treatment of this disease, with little success. He thought that a proper diet, with antiseptics, gave the most favorable results. He considered quinine of good service in children over five years of age. Belladonna must be pushed to physiological limits in order to get good results. He had used bromoform and believed its action to be similar to that of antipyrin, which he thought was probably our best remedy. He considered vaccination the only remedy that limits the duration of the disease. Intubation should be used to overcome spasms of the glottis. He believed rectal injections of

carbonic-acid gas to be of value in cases where drugs could not be used. He cited seven cases, and showed that the procedure lessened the number and severity of the paroxysms, while the method was regularly used. (For technic, see *BROOKLYN MEDICAL JOURNAL*, October number, page 794.)

DISCUSSION.

Dr. Benj. Edson: Mr. President:—I have had no experience in treating whooping-cough after the method set forth in the paper just read. Indeed, this mode of treating the disease is entirely new to me. I am, therefore, unable to discuss the paper intelligently, and what I have to say will be only of a general nature upon some of the observed phases of the disease.

When I began practise over a quarter of a century ago, I felt assured from the long list of remedies set down for use in whooping-cough, that I stood a fair chance of mastering it when called to treat it. I had not then learned that the more remedies one finds endorsed by standard writers for any given disease, the less likely is any one of them to be a specific for that disease.

This is well exemplified in whooping-cough, for which, at some time, almost every drug of the pharmacopœia has been recommended.

I am free to say that after treating some hundreds of cases in institutions and in private practise, I know little more of the etiology and treatment of whooping-cough than I did when I first began practise. New remedies are brought forward from time to time, lauded as infallible, tested, proved to be comparatively worthless, and are soon relegated to the long list of "things that may be tried." This has evidently been the status of the disease for hundreds of years. One of the earliest works devoted specially to the treatment of diseases of children, of which I have any knowledge, is by William Moss, surgeon, published in London in 1781. In his preface he says: "It has been generally supposed (as already observed) that children do not stand in need of medicine or medical advice." To us this seems singular, when to-day the treatment of children's diseases, forms so large a part of the general practitioner's work, and that branch of medicine has risen to the dignity of a specialty.

His views of the disease do not differ so very widely from ours of to-day. He says: "The chin cough is a disease that has hitherto, in a great measure, eluded the art of medicine." We cer-

tainly agree with him. "When the complaint takes on a favorable turn, it is frequently attributed to the means that were last used; hence, that means is ever after recorded as infallible." That is about the state of things at the present time.

He recognizes it as a disease of the "spasmodic and convulsive kind," or, as we might say, a disease of the nervous system.

He mentions that the disease was sometimes relieved, or removed, by a shock, or sudden fright, and instances "riding upon a bear," or giving the patient a part of some disgusting animal, as a mouse, etc., to eat, and afterwards informing him of it.

By way of medicine, he recommends the antimonial puke. This consists of 1 grain of tartar emetic in 2 oz. of water. The dose is a teaspoonful every three-quarters of an hour, to a child one month old, until he vomits. He quaintly says, "It mostly works downwards a little, also."

In pertussis the "whoop" is not always present. We have all seen cases in which the child has never been heard to "whoop" a half dozen times. I recall a series of cases in my own neighborhood in which I diagnosed the disease in a child that was never heard to whoop. The entire neighborhood was infected from this one child. The rapid, spasmodic coughing is characteristic of the disease. Once heard, it cannot be easily mistaken.

The treatment to-day, as it was 120 years ago, is far from satisfactory. In a case in my own family twenty-five years ago, I tried in succession almost everything ever recommended, and with very little apparent benefit. In this dilemma I appealed to the late Dr. C. L. Mitchell for counsel. He named over a long list of the very things I had already used. Finally, he said: "You may to some extent relieve the spasmodic cough, but the disease will probably run its course of six weeks or more. Old Dr. Close, up in Westchester, used to give infusion of chestnut leaves with some benefit, I think. His son has a drug-store in Schermerhorn street, and probably has some preparation of the chestnut leaves that you might try." I tried the *Castanea vesca*, but with no perceptible benefit. From this source, I think, Dr. S. Fleet Spier got his idea that chestnut leaves were a specific for pertussis, as referred to in the remarks of Dr. Burge. Finally, I had a mixture put up, presumed to be essentially after the formula of Roche's embrocation, and applied it. The very first application gave relief—a few more, and the child was well. Then I exclaimed Eureka! Subsequent trials, however, convinced me that

I had not found a sure cure. Occasionally it does give relief in the later stage of the disease.

When bromoform was heralded as a sure cure, I tried it, but never got any such results as were claimed for it, nor have I ever met with any one who found it much more than a delusion and a snare.

A few years ago Dr. Caldwell published a formula for a spray to be used with an atomizer, which he claimed gave almost instant relief; indeed, cured the disease in a very few days. It was widely copied in the medical journals. I tried it in an institution where the children were under the constant care of a trained nurse, but it proved to be of very little worth.

Antipyrin is tentatively recommended by some as of more or less value, but after some startling experience with it when it was first introduced and used in such doses as were recommended by the Germans, I have steadily declined to have anything more to do with it.

In this way I have given remedies new and old a fair trial, "weighed them in the balance and found them wanting." We may palliate the disease, but even with the latest proposed remedy we have not found a specific for pertussis.

For some years my remedy for children in institutions has been rum and honey—Jamaica rum and strained honey—one part of strained honey to six of rum. This is given freely up to any point short of intoxication, and it matters little if it does produce slight hilarity, followed by drowsiness. It certainly does quiet the spasmodic cough, and goes as far towards shortening the duration of the disease as do other vaunted remedies. The only objection urged against its use has been by teetotalers, who feared its possible tendency to make drunkards. A little oil or other corrigent added may prevent any hankering after it. As a matter of fact, the mixture soon becomes repulsive to the little patient, and there is little danger of acquiring a relish for it.

As a general remedy, and especially for older children, I have found the old formula of Meigs and Pepper, slightly modified, both palatable and reasonably effective:

R̄	Ext. belladonæ.....	gr. i
	Aluminis5ss
	Glycerini	} aa ʒi
	Syr. zingiberis	
	Syr. tolu	
	Syr. acaciæ	
M. Sig. ʒi 4 times a day for a child 2 years of age.		

Dr. H. C. McLean said he did not believe a specific had yet been found for whooping-cough. He believed the disease to be primarily one of the nervous system. He thought the duration of the contagion was about nine weeks.

Dr. Shipley stated that he had found antipyrin and vapocresolene to be of value.

Dr. N. T. Beers, Jr., stated that he had found the coal-tar products to be of decided value in the treatment of this disease.

Dr. Wm. Northridge stated that he believed pertussis to be an infectious disease and that many lives were lost annually, because of the carelessness of the laity in regard to its treatment. He quoted an old German proverb "that the whooping-cough lasts till its stops." He thought the theory this expressed had done great harm, as physicians had taught this to the people, with the resultant carelessness. He stated that he had used antipyrin, after Sonneberg's method, with great satisfaction since 1888, when he abandoned the use of all other drugs in this disease. During the past five years he had used acetanilid with good results, the severity and duration of the disease being lessened.

Dr. J. H. Hunt had tried many drugs, and had seen all fail. He believed bromoform to be too irritant in sufficient doses above five years of age. When children are about the house he often ordered cresolene burned in the furnace with good results.

Dr. Frank Shaw said that he had abandoned the use of drugs in the treatment of pertussis, and depended upon a mixture containing castor oil.

Dr. Henry N. Read deplored the fact that so little was thought of the early treatment of pertussis by the laity. He stated that the death-rate from this disease and its complications were very near the top of the list. He thought it should be reported, and the children isolated just as carefully as in other contagious diseases.

The author of the paper, in answer to Dr. Northridge, stated that the cost of the treatment was small, the apparatus being easily improvised, and that he had no difficulty in teaching the mothers to give the séances.

HISTORICAL DEPARTMENT.

**EMERGENCY HOSPITAL AT THE PAN-AMERICAN.
HOW EXPOSITION VISITORS WILL BE TAKEN
CARE OF WHEN THEY FALL ILL.**

A very pretty hospital building stands near the west end of the Mall. Floor area rather than elevation is a prominent feature in the construction of this important adjunct to the Exposition. Utility, first, last and all the time, is the prime consideration of this design, though it is by no means a case of utility unadorned. In conformity with the general Exposition plan the free Spanish Renaissance has been treated, in this instance, with a strong leaning towards the old mission interpretation.

Having a frontage of ninety feet on the Mall, the main wing has a depth of thirty-eight feet with a height of but one story, except in the center, where it assumes the form of a square tower with a rounded top. This tower attains to the pretentious height of two stories surmounted with two flag-staffs. One staff supports the Exposition flag and from the other waves the well known Red Cross banner, the only universal international emblem that is recognized and revered in all countries.

A rear wing, one story high, runs back from the center portion a distance of fifty-six feet with a width of thirty-two feet. This form of construction lends itself readily to this picturesque reminder of the early struggles of our first missionaries.

Color here, as everywhere throughout the grounds, adds its mantle of beauty to the odd and in many cases obsolete methods of construction, penetrating, rather than clothing the building in the warm changing tints of the sunset. A low wandering adobe mission house covered with heavy red tiling, its weather stains retouched by the gorgeous rays of the departing sun, may be readily imagined while looking at this rehabilitation of the past.

Any antiquated illusion that may be conveyed by the outside appearance of this building is, however, at once dispelled by a visit to the interior.

*Modern arrangements that are both convenient and sani-



tary mark every feature. Approved medical and surgical appliances have been carefully selected in regard especially for their adaptability to emergency work and the exigencies that are likely to arise.

The main hospital entrance is from the Mall, opening directly into a handsome rotunda decorated with tropical plants and suitable hangings of pictures, drapery, etc.

The main office is situated at the farthest left hand corner of this rotunda, where it is carefully tucked away under the staircase, forming an irregular alcove. It contains telephone and electrical annunciator, and messenger call service, with other modern and necessary appurtenances. As this is lighted from above and encircled by a round gallery opening through the upper story the effect is very pleasing and agreeable. The first floor front contains in the extreme western wing, two male wards with seven cots each, a bathroom, physicians' office, a morgue and a linen chest. The eastern wing contains a woman's ward, large enough to hold a dozen cots, with direct communication with the woman's bathroom. This wing also contains an office for the superintendent of nurses, private physician's office, a linen closet and other conveniences.

The upper story is intended for the use of the resident physician and the necessary attendants. It is fitted up with four pleasant, comfortable bedrooms and a bathroom. The rear wing extending back from the main entrance contains the operating room, sterilizing department and instrument cases. Immediately across the hall is the emergency bathroom and the patients' waiting room. Still farther down the corridor is located the kitchen, pantry and dining room, which are intended for the use of patients only, as the staff have their culinary department in the service building, situated but a few yards distant. In the extreme southern end of this wing is the storage room for the electrical ambulances; this room also contains a station for recharging the batteries; electricity for this purpose being brought from an electric circuit provided for the electric launches on the Grand Canal. In addition to the two electrical ambulances, a steam or gasoline motor ambulance will be provided to be ready in case of a possible failure of the electrical current. The building is provided with natural gas for heating purposes and for cooking when necessary for the patients.

Water, gas and electricity are carried to every part of the hospital in the most approved manner.

The building is plastered throughout and rendered sanitary and germ proof so far as possible, in every instance. The staff in attendance are uniformed to grade according to universal custom.

In the matter of equipment and appliances, everything is of the newest and best. A new litter attracts considerable attention; it is carefully balanced and so arranged that one attendant can operate it easily and noiselessly, as it runs on two wheels about twenty inches in diameter which are fitted with large inflated rubber tires. Sterilizing apparatus, with a compartment for instruments and another for towels and linen, is another necessary arrangement.

Roswell Park, M.D., is the Director, Vertner Kenerson, M.D., Deputy Director, and Dr. Alexander Allen is the resident physician, a staff which will at once inspire confidence in all who are acquainted with these gentlemen or their work. The efficiency of this department is an illustration of the manner in which the Exposition is designed and executed in all its departments. Everything has been carefully arranged according to a great comprehensive plan, the details of which have been worked out in every instance with careful and conscientious precision.

In regard to the importance of this adjunct to the Exposition, it may be said that up to the first of March five hundred and four cases have been treated on the grounds, only one of which proved fatal. These include all forms of sickness and accidents to workmen employed upon the construction work. In this connection it is well to note that the number of cases treated at the Omaha Exposition was about three thousand, while the history of the hospital at the World's Fair in Chicago gives a total of 11,602 medical and surgical cases treated, resulting in sixty-nine deaths.

It is hoped to have less use than this for the hospital at the Pan-American, though in the immense crowds who will attend, no doubt, many individuals will have occasion to appreciate the provision that has been made in this direction.

HERBERT SHEARER.



JAMES BYERS WARDEN, M.D.

JAMES BYERS WARDEN, M.D.

Another of the younger members of our profession has been called upon to complete his life work among us, and join the great majority who have gone before. Very little time do we give to this question of the uncertainty of human life, and, so far as our labors in behalf of suffering humanity are concerned, it may be well that we do not; but we cannot help feeling that a little over ten years in our chosen profession is not sufficient to accomplish that which our nature or ambition makes us feel that we should do. Our former associate has a few years made a record for himself which his family and friends may point to with pride and admiration, an incentive to the younger members of our profession to do likewise.

Dr. Warden was born in the city of New York, June 24, 1862, and died in Brooklyn, N. Y., February 22, 1901. His father, James Byers Warden, and his mother, Maria Conelly, both were of Ireland. On November 12, 1890, he married Miss Isabel Rosa Tuttle of this city. One child, Isabel, was born as the result of this union.

Dr. Warden was educated in the schools of this city, and graduated M.D. from the College of Physicians and Surgeons, New York, in the class of 1899. During his professional life he practiced medicine in this city. He was a member of the Medical Society, County of Kings, from 1891 to the time of his death. He was also a member of Omega Chapter, Phi Gamma Delta, and Altair Lodge, No. 601, F.A.M., the officers of which conducted the beautiful Masonic services for the dead on Sunday, February 24th.

WILLIAM SCHROEDER, M.D.,

Sec. of Hist. Com.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

A portion of the news column was crowded out of the April number by press of other matter.

At the Methodist Episcopal Hospital Drs. S. D. Pray (Bellevue), T. W. Bill (P. & S.), R. W. Sherman (P. & S.), and O. R. Witter (P. & S.) were appointed to the house staff.

Dr. Robert J. Morrison has been elected president of the Royal Arcanum Club. The first meeting in the new house of the club, at 62 Hanson Place, was held April 15th, and an opening reception was given, April 30th, by the Grand Regent, Dr. Wm. A. Griffith.

Dr. Myles Purvin has been appointed by Mayor Van Wyck a member of the board of managers of the Brooklyn Dispensary Training School for Boys.

Dr. James M. Downey recently returned from a month's trip to Florida, where he went to recuperate from a severe septic infection which he contracted before he had entirely regained his strength after a long siege of typhoid fever.

Dr. J. M. Holt, formerly of Brooklyn, Assistant Surgeon United States Marine Hospital Service, representing Brooklyn in this one of the three government medical corps, having been in command of the station at Cairo, Ill., since November, 1899, has been assigned to duty at the Chicago station. He believes that this city would be better represented if "the profession knew more of the fascination, pleasure and advantages incident to the career of a government medical officer."

Dr. Hugo Koethe has removed to 262 Vernon avenue.

The revolver match between the surgeons and the inspectors of rifle practice of the four Brooklyn regiments will be shot May 4th, at 8:30 P.M., in the armory of the Twenty-third Regiment.

At the April meeting of the Gynecological Society, Dr. H. P. de Forest read a paper, entitled "The Teaching of Obstetrics, the Means by Which Such Instruction Can Be Made of the Greatest Practical Value to the Student." It was discussed by Drs. Austin Flint, Jr., New York; John O. Polak, Ralph H. Pomeroy, George L. Broadhead, New York; J. Clifton Edgar, New York; Edwin B. Cragin, New York; Charles Jewett, Edward P. Davis, Philadelphia; J. W. Williams, Baltimore; Richard C. Norris, Philadelphia; Edward Reynolds, Boston; Robert L. Dickinson, and Barton C. Hirst, Philadelphia.

Dr. R. S. Seaman, of 389 Macon street, died February 17th, in the seventy-fifth year of his age; Dr. James B. Warden, of

253 De Kalb avenue, died February 22d; Dr. John B. Busteed, of 250 Clermont avenue, died March 12th; Dr. J. H. Hobart Burge, of 132 Montague street, died March 24th.

The summer meeting of the Associated Physicians of Long Island will be held in Sag Harbor, Saturday, June 15th. The special train will leave Saturday morning, but it is expected that quite a delegation will go down by the boat Friday night.

Dr. Cornelius R. Love was married April 10th to Grace Anderson Smith, daughter of Mrs. Freeman Anderson Smith. April 25th, Dr. Charles Louis Fincke was married to Mattie Brown, daughter of Mr. and Mrs. Joseph Epes Brown.

The second annual meeting of the American Congress of Tuberculosis will be held at the Grand Central Palace, New York, May 15th and 16th, in joint session with the Medico-Legal Society. There will be an exposition of electrical and other instruments, and all appliances used in any way in the arrest or treatment of the disease.

The annual meeting of the Association of Medical Officers of the Army and Navy of the Confederacy will be held in Memphis, Tenn., in connection with the annual reunion of the United Confederate Veterans, May 28th to 30th.

The *Brooklyn Eagle* Library published recently a large pamphlet on "Christian Science Claims" and "Eddyism," by W. H. Muldoon ("Mul"). This should be very appropriate for the table in every physician's waiting room.

The Maltine Company, which certainly has depended upon ethical methods in building up its business, has taken another step which will surely be commended by the profession. It will in future not only refuse to supply its preparations to department stores, but will refuse to supply them to dealers who are known to sell them to those firms. Very many physicians wisely refrain from prescribing proprietary preparations which are advertised and sold outside of their proper place—the drug store.

The Brooklyn Medical Club have invited Prof. J. George Adami, of McGill University, Montreal, to deliver an address under its auspices, before the medical profession of Brooklyn, upon a subject of general interest to the profession. Dr. Adami has chosen for his subject "The Medical Aspect of Heredity." The address will be given Friday, May 17th, at 8:30 P.M.

Dr. A. A. Webber again captured the Dewar Challenge Cup

in the competition at Interstate Park, at twenty-five birds. His score was twenty-three kills, the two he lost being dead out of bounds. This is the fifth time Dr. Webber has won this trophy.

During the past few years the staffs of the hospitals have recognized the value of trained nursing, and in consequence the number of training schools has greatly increased, there now being one in connection with nearly every institution in Brooklyn devoted to the care of the sick. In St. Catherine's, St. Peter's, and the Norwegian, the sisters in charge are trained to this work. The requirements for admission to all are practically the same—a good common school education, good health, and good moral character. The personal adaptability to the work of this profession can only be discovered by a trial, and, therefore, the different schools impose a period of probation, varying from one to three months, at the end of which time the applicant may be dropped in the discretion of the superintendent. In some an allowance is given during the course, which is intended merely to cover expenses; in others, uniforms, books and necessities are supplied. Further data of the different training schools, which may be of interest, is best given in tabulated form. The school of the Homeopathic Hospital is omitted, as that is not at present in operation. It will probably, however, be continued when that hospital is opened in the fall.

Hospital Training School.	First Class Graduated.	Length of Course.	Age Preferred.	Monthly Allowance.	Number of Graduates.	Number of Pupils.
Brooklyn.....	1882	3 yrs.	23 to 33	\$5.00	200	60
Brooklyn Maternity.....	1873	2 yrs.	21 to 35	\$12.00 in 2nd year.	153	15
Bushwick Central.....	1899	3 yrs.	21		3	6
Kings County.....	1899	2 yrs.	21 to 35	\$8.00 1st yr.; \$12.00 2nd yr.	35	50
Long Island College.....	1886	3 yrs.	21	\$9 1st 18 mos. \$15 2nd "	350	50
Memorial.....	1890	2 yrs.	23 to 35	\$8 1st yr.; \$12 2nd yr.	46	26
Methodist Episcopal.....	1889	3 yrs.	21 to 35		138	32
St. Johns.....	1899	3 yrs.	22 to 34		7	21
St. Mary's.....	1891	3 yrs.	20 to 35	\$100 annually 2nd & 3rd yrs.	110	40
Williamsburg.....	1901	2 yrs.	21	\$8, 1st yr.; \$12, 2nd yr.		10

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

EDITOR IN CHIEF:

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VOL. XV, No. 6.
WHOLE No. 162. }

BROOKLYN, N. Y., JUNE, 1901.

{ Single copies 25 cents
{ \$2 a year, in advance

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Regular Meeting, April 16, 1901.

The president, William Browning, in the chair.

There were about seventy-five members present.

The minutes of the previous meeting were read and approved.

REPORT OF COUNCIL.

The council reported favorably upon the following applicants:

Warren L. Duffield, L. I. C. H., 1898.

Murret F. De Lorme, L. I. C. H., 1900.

George J. Wardenburg, P. & S., N. Y., 1896.

William Henry Taylor, L. I. C. H., 1898.

Gustav Liebermann, N. Y. Univ., 1887.

E. W. Vietor, Univ. State of N. Y., 1875.

A. M. Gillen, L. I. C. H., 1897.

August Hoerle, P. & S., N. Y., 1885.

John A. Shields, P. & S., N. Y., 1898.

Charles A. Bailey, L. I. C. H., 1898.

John J. Collins, P. & S., N. Y., 1898.

F. P. Jenks, L. I. C. H., 1895.

APPLICATIONS FOR MEMBERSHIP.

Gustav J. C. Tieck, 89 Pulaski street, L. I. C. H., 1899.
Nominated by Membership Committee.

William Vincent Dee, 290 Bridge street, L. I. C. H., 1893.
Nominated by Membership Committee.

William Benham Snow, 570½ Leonard street, P. & S., N. Y.,
1885. Nominated by Membership Committee.

Mary L. H. Arnold Snow, 570½ Leonard street, Cooper Med.
Institute, San Francisco, Cal., 1897. Nominated by Member-
ship Committee.

James Henry McCabe, 126 William street, L. I. C. H., 1895.
Nominated by R. L. Dickinson. Endorsed by Membership Com-
mittee.

V. W. Weed, 675 Jefferson avenue, P. & S., N. Y., 1900.
Nominated by Franklin P. Miller. Endorsed by W. S. Hubbard.

William S. Earle, 62 Clark street, Univ of Pa., 1859.

Anthony Frederick Zahn, 115 Sumner avenue, Bellevue, 1887.

Hugo Nicciarone, 523 Henry street, Univ. of Naples, 1889;
Univ. of State of N. Y., 1900

Frederick D. Crawford, 409 Clinton street, L. I. C. H., 1898.
Nominated by H. P. de Forest. Endorsed by George W. Colby.

Henry Bagully, 29 Debevoise street, L. I. C. H., 1900.

Henry E. Bell, 428 Park Place, L. I. C. H., 1898.

Giovanni Caruso, 19 Hurlber street, Ashtabula Harbor, O.;
Naples, 1888.

Albert L. Clark, 100 Nassau avenue, Bellevue, 1878.

James Pullman, 155 Reid avenue, Yale, 1899. Nominated by
H. P. de Forest. Endorsed by George W. Colby.

FOR CORRESPONDING MEMBERSHIP.

Louis Fowler Joy, L. I. C. H., 1897, 301 Oneida street, Ful-
ton, N. Y.

Frank Maddren, L. I. C. H., 1879, Plattsburg, Clinton Co.,
N. Y.

Frank Davey, L. I. C. H., 1899, 206 West 105th street, Man-
hattan.

Oliver C. E. Smith, L. I. C. H., 1883, 44 High street, Hart-
ford, Conn.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the
council, were declared by the president elected to membership:

- John D. Shea, P. & S., N. Y., 1896.
 Addison Raynor, P. & S., N. Y., 1893.
 Elijah L. Bruen, L. I. C. H., 1899.
 Edward L. Parker, Univ. Syracuse, 1896.
 Joseph Meyer, P. & S., N. Y., 1877.
 John M. Callendar, Univ. Virginia, 1896.
 H. S. Shlevlin, Yale, 1892.
 P. F. Hogan, Univ. Mich., 1872.
 C. A. Von Urff, L. I. C. H., 1899.
 Joseph D. Hall, N. Y. Univ., 1887.
 Charles R. Jenkins, L. I. C. H., 1899.
 John F. Davis, Bellevue, 1874.
 Frank H. Knight, P. & S., 1899.
 James H. B. Dowd, L. I. C. H., 1900.
 R. F. J. Hussey, L. I. C. H., 1894.
 Tracey E. Clark, L. I. C. H., 1900.
 E. M. Bullwinkle, L. I. C. H., 1898.
 Fred. J. McCammon, Queens Coll., 1892.
 James Watt, L. I. C. H., 1900.

The president announced the death of Dr. John Henry Hobart Burge, the oldest member of the society, who died in Brooklyn on March 24, 1901.

SCIENTIFIC BUSINESS.

Paper: "The State Hospitals: A Review of a Year's Work."
 By Dr. William Mabon, Superintendent of the St. Lawrence State Hospital, Ogdensburg.

Discussed by Dr. Elliott.

On motion of Dr. Elliott, a vote of thanks was tendered to Dr. Mabon for his address of the evening.

"Annual Summary of the Historical Committee." By William Schroeder.

"Some Remarks by the President." William Browning.

Discussed by Drs. Maddren, McNaughton and Schroeder.

UNFINISHED BUSINESS.

Communication from State Medical Society.

The council reported their approval of the recommendation of the State Medical Society that such change in the by-laws of the State Medical Society be made as will permit each county

medical society to send any number of delegates, not exceeding five for each Assembly District, to each annual meeting of the State Society, the present rules to obtain as to such delegates becoming permanent members—and recommending that the necessary steps be taken to this end.

On motion this recommendation of council was adopted.

NEW BUSINESS.

A communication was received from the Directory for Nurses, transmitting a check for \$200, to be turned over to the treasurer of the society.

The president stated that the directory had been put on a modern basis, only graduate nurses being now registered; that the work of the directory had increased so that they had been enabled to turn over this amount to the society treasury, and that the directory should receive the encouragement of every member of the society.

On motion, adjourned.

WM. S. HUBBARD,
Associate Secretary.

BROOKLYN SURGICAL SOCIETY.

JAMES P. WARBASSE, M.D., EDITOR.

Annual Meeting, June 7, 1900.

The President, Dr. Walter C. Wood, in the Chair.

NEEDLE AND THREAD IN KNEE-JOINT; SUPPURATION; OPERATION;
COMPLETE RECOVERY OF USE OF JOINT.

DR. WILLIAM MADDREN presented a girl $8\frac{1}{2}$ years old, healthy, of good family history, who while sitting upon the floor sewing, her legs crossed tailor fashion, put her needle point downward into the carpet to reach over for a pair of scissors; in so doing she lost her balance and fell over; the shank of the needle was pressed into her right knee, with force sufficient to break the needle into three or four pieces, leaving the eye portion, threaded with sewing cotton, buried in the knee.

A physician was called immediately, an anesthetic was given, and an attempt made to carefully follow the thread, hanging out of the wound, to the portion of the needle in the knee. Unfortunately in the poor light the thread was cut, and the guide lost. After searching diligently to find it for about an hour, and thinking it unwise to keep the child longer under the anesthetic, the attempt was given up and the incision sewed up and dressed. At 3 A.M. next morning the child's temperature was 103° and the following evening, less than twenty-four hours, the temperature was $105\frac{1}{3}^{\circ}$.

The next morning when Dr. Maddren was called to see the child the temperature had fallen one or two degrees. The knee was moderately swollen, very painful and tender, and slightly flexed.

Believing sepsis and suppuration were present, he advised a skiagraph be taken to ascertain the location of the needle; and an operation to remove it as soon as possible. The skiagraph proved of sufficient value to locate the needle in the joint. [Skiagraph with portion of needle and thread taken from joint shown.]

Tuesday morning, three and a half days after the injury occurred, assisted by Drs. E. P. Hickok and C. F. Barber, he opened the right knee-joint freely by a straight incision directly down upon the outside of the joint. The joint was found distended with thick, greenish-yellow material, in which floated the thread leading to the portion of the needle, which appeared in the skiagraph as a round, dark spot on the joint surface of the outer condyle of the femur. The portion of the needle was extracted with forceps, after making a good counter opening upon the inside of the knee, the joint was repeatedly and thoroughly washed out with bichloride and with sterile salt solutions. A perforated, thick-walled rubber drainage-tube was drawn through the joint from side to side, the parts sewed up, and the knee dressed and put up in a slightly flexed position.

In forty-eight hours the joint was again thoroughly irrigated with the bichloride solution, followed with the sterile salt solution. Daily irrigations were continued until the fifth day, when a bundle of strands of sterile silkworm-gut were drawn through the tube and the tube removed. These strands were removed a few at a time, extending over a week or two, until the discharge appeared to be free from pus.

No splints or fixation dressing other than a pillow were used;

and passive motion, at first very gentle, was employed as soon as the condition of the joint would permit. No crutches were used, only a cane for four weeks, and the child encouraged to move about. In about five weeks she was able to go out, and at the end of three months she could walk naturally, kneel without difficulty, and dance without onlookers detecting a difference in the function of her knee-joints.

SEPARATION OF LOWER EPIPHYSIS OF FEMUR WITH DEFORMITY
SIMULATING DISPLACEMENT OF FIBRO-CARTILAGE OF KNEE-
JOINT.

DR. WM. MADDREN presented a young man æt. 17 years, good family history. While exercising a horse he was bitten and dragged from his saddle by another horse, twisting his left knee-joint. He could not rise after falling, and found great pain in the knee. A physician was called, who said that there was a dislocation of the knee, that the tibia and fibula were displaced outward, and that the patella appeared to be displaced inward. Chloroform was administered and the dislocation reduced.

After entering the Kings County Hospital the knee was found swollen, and with fluctuation at the inner side. The knee-joint was examined under ether and the semilunar cartilage was thought to be displaced.

Operation by Dr. Maddren, March 19th, about a month after receipt of injury.

Long curved incision made over outer aspect of knee-joint, with convexity backwards. Joint cavity opened and found apparently normal. Fracture through external condyle of femur, $1\frac{1}{2}$ inches from articular margin, with displacement of lower fragments inwards. Fracture appears to extend nearly across the femur and then extend obliquely upwards and inwards across inner condyle. Union between fragments is quite firm. Wedge-shaped piece of bone sawed transversely from lower end of upper fragment, adhesions broken up, and lower fragment brought into position and secured by two stout chromicized catgut sutures passed through drill-holes bored obliquely through outer margin of both fragments. Drainage-tube inserted in joint and plaster cast applied after suture of wound.

Patient suffered severe pain in knee for two days after operation. On March 8, two days after operation, a window was made in the cast over the incision and drainage-tube withdrawn.

A moderate amount of sero-sanguineous fluid had dried on the dressing. Patient suffered no pain after this; on March 15th window was opened and sutures removed. Wound had healed.

On April 17th the cast was removed. Joint stiff but apparently in normal position. Some pain on passive motion. Patient out of bed on April 21. Some edema of extremity was present for several days after leaving bed. Motion of joint increased rapidly under active and passive motion.

Present condition: Leg fairly straight, left knee wider than right, a small amount of fluid in joint. Can bend knee about forty-five degrees. Walks without pain with the help of a cane.

Discussion.

DR. J. M. CLAYLAND noticed in Dr. Maddren's case that there was still considerable fluid in the joint, and questioned the advisability of allowing him to go about.

DR. MADDREN said that he could not keep the boy in the hospital as long as he had wanted to; that the boy was anxious to get home to Kentucky, and was allowed to go out of the hospital against the judgment of the doctor. The speaker did not think that the fluid was present when the patient left the hospital. Dr. Maddren said that he thought this separation or fracture occurred very much as Pott's fracture at the ankle occurs, with that kind of force or leverage that pried off the epiphysis or made a fracture on that line.

DR. H. B. DELATOUR had seen two such injuries to the lower end of the femur, both caused by catching the foot in the spokes of a wheel which was revolving. One was a compound condition and the other was simple. In the compound there was a true separation of the lower epiphysis of the femur, the shaft projecting backwards through the skin, the knee being carried forward. It was exceedingly difficult to reduce, but once reduced was easily held in position. The other case was a similar injury but was more difficult to diagnose as truly an epiphyseal separation. Both cases were in children.

REMOVAL OF MECKEL'S GANGLION FOR NEURALGIA.

DR. H. B. DELATOUR presented a case of intractable facial neuralgia which had been operated on some four years ago by removal of the infraorbital nerve in front. For about two years the gentleman was free from pain, and then the neuralgia re-

curred. During the winter he had two attacks of very severe pain, which subsided, not completely disappearing; but in April it became unbearable, and he demanded something in the way of operative interference. He is a chemist who knows something about surgery, and has had interest enough in the subject to look up the matter, and, suffering as badly as he was, was willing to have almost anything done, but asked that, if possible, an intracranial operation be avoided. The Carnochan operation, when the speaker had seen it done, had been exceedingly unsatisfactory, in that the hemorrhage is so great that it is difficult to see the nerve and to know what one is doing; and in this case it would have been exceedingly difficult, as the greater portion of the nerve had been removed from the face and no guide would have been at hand to trace it back into the fossa.

The operation described by Braun seemed so easy to the speaker that he decided to adopt that method. He procured a subject and practised the operation twice, during which time he discovered that the ganglion was quite easily recognized. The incision consists of two parts: the perpendicular or slanting incision, beginning just about the angle of the mouth and carried up to about the level of the outer canthus of the eye, and then across on the level of the zygoma. The malar bone is then freed behind and sawn through either with the chain saw or a Hayes saw, and the zygoma fractured back at the temporal portion. The whole mass then, including the masseter muscle, is turned outward and backward. This exposes the condyle of the jaw and the mass of fat lying in the inner maxillary fossa. The retractor then easily draws the muscle backwards and the fat in the fossa is easily removed with forceps with little or no hemorrhage. If the finger is then placed in the upper angle of the wound, following back directly to the under surface of the skull along the sphenoidal bone, a small nipple of bone is felt there, which the speaker discovered in his preliminary operations was an accurate guide to the position of the nerve. If the finger is carried back along the base of the skull until it comes to this little projection of bone, which is very distinct, and then a strabismus hook is carried in beyond the tip of the finger and hooked forward and upward, it is almost impossible to miss the nerve. If the nerve has not already been removed from in front, the incision on the cheek can be made so as to raise the skin and draw the anterior flap forward, and thus expose the infra-orbital canal, and in that way the whole infraorbital nerve can

be removed through this incision. The speaker, and Drs. Bristow and Brinsmade who assisted him, were surprised at the slight amount of hemorrhage, which was almost nothing. After the removal of the nerve the palatine branches are easily removed also, practically coming out with the fat as the latter is drawn out from the speno-maxillary fossa. The malar bone was replaced and held in position by catgut sutures passed through the periosteum and superficial tissues. The sub-cuticular suture was then placed along the upper incision and a second one along the other incision, no drainage being employed. The recovery was immediate. There was no further pain. The operation was done on Thursday and the patient was able to be up on Saturday. On Sunday the outer dressings were removed, and the line of incision painted over with collodion, and on Monday he was able to return to his work. The speaker believed that the scar resulting from this operation is very much less than that which results from almost any of the other operations attacking the nerve.

The third division can be reached through the same incision by simply drawing the temporal muscle forward instead of backward.

Four weeks had elapsed since the operation was done. The sensation in the roof of the mouth has been one of swelling, and it was hard to convince the patient at first that he did not have a swelling in the roof of his mouth, and there is some change in his speech, which is still a little thick.

Discussion.

DR. M. FIGUEIRA had seen a few of these cases and his experience was that the pain always returned after the removal of the branches of the fifth nerve unless the Gasserian ganglion was also removed. He remembered a case in Bellevue in which Professor Wood removed all the branches, one after the other, and in every case after a number of years the pain returned, and at last the man became a fixture in the medical wards for morphine injections. The speaker believed that without the removal of the Gasserian ganglion the outlook of surgical interference in these cases was not good.

DR. H. B. DELATOUR said that the remarks of Dr. Figueira would certainly be recognized as the truth, but the difference in the mortality following an operation of this sort and the mortality of the Krause-Hartley or any of the operations going within the

skull, is so great that it seemed to him that it was hardly doing justice to the patients to attack the Gasserian ganglion if they could be relieved for a number of years without so doing. There are a number of cases on record in which the removal of Meckel's ganglion has been followed by the complete cessation of the neuralgia.

The speaker recalled one case in which Carnochan's operation was done and an attempt made to remove Meckel's ganglion through the face. In that case the hemorrhage was so great that it was absolutely impossible to see what was being done. The actual cautery was passed into the fossa and what could be destroyed with the heat was destroyed and the patient was relieved of pain for a number of months, **but** it recurred, and in that case ligature of the common carotid artery was done, and for at least two years the man was free from pain.

The speaker's own feeling in these cases from having seen quite a number of them, was that the removal of the superficial portions of the nerve is of very little use and gives relief for only a few months, but if we can attack the nerve as near the Gasserian ganglion as can be done through this incision, and not only get the second but also the third division with little or no shock to the patient, he believed very good results could be looked for.

LIPOMA OF THE LEG.

DR. WILLIAM MADDREN presented a lipoma, weighing about a pound, which was of interest because it had been removed under cocain from the anterior aspect of the leg of a man aged sixty-nine. The tumor had extended from an inch and a half below the knee to about the same distance above the ankle-joint. In shape it was fusiform, with two or three small lobules projecting from the under surface.

In making the incision over the tumor, a layer of muscular tissue had to be cut through to expose it. The tumor extended downward between, or beneath, the muscles, exposing and making pressure upon the anterior tibial nerve and vessels sufficient to cause the patient to complain of numbness, fulness, and discomfort in the leg and foot. The small lobules had extended behind the anterior tibial nerve and vessels.

LIPOMA OF THE LEG.

DR. H. B. DELATOUR presented a lipoma which had been situated between the tibialis anticus and the tibia of the right leg. It

presented like a small cystic tumor just above the ankle, and, on incision, was found to be a lipoma and had to be followed up all the way to the upper end of the tibia.

LIPOMA OF SCROTUM SIMULATING HERNIA.

DR. H. B. DELATOUR presented another lipoma from a man about 50 years old, who had been sent to him as a case of hydrocele. On examination the scrotum was very large and at first appearance it looked like an immense double hernia, but the tumor evidently was confined entirely to the right side of the scrotum and did not contain intestine, but appeared to be probably a case of hernia of the omentum. At operation, however, this large mass was found occupying the right side of the scrotum, extending up to the inguinal canal but not entering the ring. It was easily separated, with no suggestion of an intra-abdominal connection, and occupying the center of the mass was the testicle. The testicle was at the lower portion of it, but covered in by a part of the fatty mass. The cord and vessels ran up through the center of the tumor. The vas deferens and the vessels were dissected out and the mass easily removed. The vas deferens, from the external abdominal ring to the testicle measured about 15 inches in length.

URETHRAL CALCULUS.

DR. F. W. WUNDERLICH reported a case of a man, aged 36, admitted to St. Peter's Hospital suffering with hemorrhage from the urethra. The hemorrhage ceased after he had been quiet in bed for a few hours. It recurred a few days later, and on examination was found to be caused by a calculus in the prostatic portion of the urethra,

Under ether anesthesia a perineal section was made. When an attempt was made to grasp the calculus with forceps, it slipped back into the bladder. After dilatation of the neck of the bladder with the finger the calculus was removed without any difficulty. The bladder being in a healthy condition and the urine perfectly clear, he had closed the wound immediately with silkworm-gut sutures. The sutures were passed on both sides from within outward, the needle entering close to the margin of the mucous membrane and passing out through the tissues and skin; when tied they approximated the divided tissues accurately. During the first twenty-four hours the urine was drawn with a catheter;

subsequently the patient was allowed to pass it. The wound healed by first intention.

CALCULUS FROM FEMALE BLADDER.

DR. F. W. WUNDERLICH reported the case of a patient first seen in 1891, when she had been married but a short time, and was then treated for cystitis, after recovery from which she passed from observation until 1898. At that time she had severe pain on micturition and had to pass her urine very frequently, but she would not permit an examination of the bladder, though undoubtedly at that time there was a calculus. Later the pain became very severe and she came again for treatment, and this calculus of the bladder was found. It was removed through a vaginal incision, and the wound closed with silkworm-gut and silk sutures.

The stone was firmly adherent and a number of small pieces broke off during the attempts made to remove the stone with forceps.

The stone, forty-eight hours after removal, weighed 5 ounces, 4 scruples and 15 grains. The patient being in Sims' position, the left hand pressed on the stone from above, aided by manipulations made with the right hand, and the stone was pushed through the wound.

The patient continued to pass urine naturally, and everything went well for nearly a week, then for three days there was a leak, but that has stopped. She is passing her urine again, and there is very little urine flowing through the vesico-vaginal fistula, which seems to be closing.

DR. W. MADDREN said he had removed one or two vesical calculi from women, one weighing about an ounce, which was removed by urethral dilatation and crushing.

DR. W. C. WOOD thought the condition was rare in women. He reported a case some years ago, in which he removed a calculus from a young child of six.

STRAGULATED INGUINAL HERNIA TREATED IN TWO STAGES.

DR. F. W. WUNDERLICH reported the case of a man, aged 36, longshoreman, admitted to St. Peter's Hospital with a strangulated hernia. Owing to the vigorous and protracted attempts to reduce the hernia by taxis, to which the patient had been sub-

jected prior to his admission to the Hospital, the parts were in such a condition that it was deemed unsafe to bring them together with sutures after the strangulation had been relieved by the cutting operation. The intestines having been returned to the abdominal cavity, the wound was packed with moist boric-acid gauze, covered with several layers of gauze and absorbent cotton, and this kept in place with an elastic bandage. The patient was placed in bed with the pelvis elevated. Fortunately the patient did not vomit, and the intestines did not show the least tendency to protrude again. A large amount of serum had drained off. The swelling and discoloration of the parts gradually subsided, and the general condition of the patient improved very much. Twelve days after the first operation the granulations were removed with a curette and the parts united with silkworm-gut sutures. The wound healed firmly. The sutures were removed at the end of a week, and patient was kept in the recumbent position for another week.

The speaker reported this case with a plea for the use of secondary sutures in cases in which immediate union of the parts is not permissible or in which primary union has failed.

ON THE CO-OPERATION OF SURGEONS IN THE MAKING OF SURGICAL HISTORY.

DR. JAMES P. WARBASSE read a paper on the above subject. He traced the history of history-making from the earliest times down to the present, which he designated as the period of co-operation or mutual helpfulness. He urged upon surgeons to lend mutual assistance in keeping track of cases. For want of a more perfect co-operation hospitals are issuing reports of malignant tumors extirpated and the patient discharged cured, while the patient is being operated upon elsewhere for recurrence. Hernias are being reported cured while in some other institution a secondary operation is being done or the patient is being fitted with a truss. While one surgeon is discoursing upon his improved method of closing the abdominal wound, another is operating upon his case for the cure of ventral hernia.

The speaker urged upon hospitals particularly the broadest co-operation. He would have all hospitals supplied with a blank form, to be filled out and sent to the hospital in which the patient had previously been. This blank should be filled out by the historian at the bedside of the patient while he is taking the his-

tory, and sent to the office to be mailed to the other hospital from which the patient had formerly been discharged.

He presented a form which has been adopted by the Methodist Episcopal Hospital in New York.

Discussion.

DR. M. FIGUEIRA believed that the plan recommended by the author was a very good one and one to be recommended and encouraged. It brought to his mind three of his cases that were very much to the point. He operated two years ago on a case of abscess of the abdominal wall. The case did well to a certain extent, but a number of sinuses remained that would not heal and the man was discharged. He was lost track of for two years, when Dr. Bristow informed the speaker that he had found a case in the County Hospital with some enlargement of the abdomen and some tumor, and the patient told Dr. Bristow that he had been under the care of Dr. Figueira. Through the kindness of Dr. Bristow the speaker learned the after-history of the case. If the system mentioned by the author was practised, the speaker would have been able to get more information in regard to this case than he did.

Another case was one which is now under the care of Dr. Maddren, who recently mentioned it to the speaker. It was the case of a little boy that came to the hospital with an enlargement in right inguinal region; it was tender and fluctuating, and was operated on on the supposition that it was something connected with the appendix, but after operation proved to be a cyst of some kind containing urine, and could be traced to the kidney. The relations of it could not be very well made out, as the patient did not stand the operation very well and the incision made for a supposed appendicitis did not render complete exploration possible. The patient recovered with the exception of a small fistulous tract which discharged fluid similar to urine; it was not urine, but showed some epithelium under the microscope. A further operation was advised, but the speaker lost track of the case until the other day, when Dr. Maddren mentioned it accidentally to him. This case shows the importance and usefulness of the plan advocated by the author. The third case is one that came to the hospital with gangrene of the foot—an old patient suffering from diabetes mellitus. In that case the speaker informed the patient that the chances were against him,

but if he was willing to take them, the speaker would operate. It so happened that the patient came under the care of another surgeon, who removed the limb and the man recovered. The case was afterwards reported at some society as a case in which Dr. Figueira declined to operate and some enterprising man brought to a successful issue the case he was not willing to take care of.

If this system of Dr. Warbasse's were in practice, that surgeon could have gotten all the information he needed from the speaker and from the hospital, and he would not have done the speaker an injustice. He believed the suggestion was a most excellent one in every way.

DR. WM. MADDREN added his hearty commendation of the author's plan and said he would be pleased to further it in every way possible in his power.

THE BROOKLYN SURGICAL SOCIETY.

Regular Meeting, October 4, 1900.

The President, DR. JAMES P. WARBASSE, in the Chair.

COCAIN ANALGESIA BY MEANS OF SUBARACHNOID SPINAL INJECTIONS, WITH REPORT OF CASES.

DR. G. R. FOWLER reported a series of cases upon which he had operated under anesthesia produced by the injection of weak cocain solutions in the subarachnoid space in the lumbar portion of the spinal canal.

The last case upon which he had operated was one admitted two days ago. A careful examination revealed the presence of fluid in the right pleural cavity. An aspirating needle was introduced on the next day and 50 ounces of seropurulent fluid with an odor of putrefaction evacuated. The temperature rose late on the day of reporting, whereat the medical attendant on service urged that his pleural cavity be opened. Respirations were 46, pulse 120 and temperature 102.6. He appeared to be markedly septic. He was placed on his left side on the operating table, the right side being the seat of the effusion, and the cocainization carried on with the patient in this position. In this case the

speaker desired to get it to as high a point as possible and conceived the idea of increasing the bulk of the fluid without increasing the actual amount of cocain injected. For this reason he diluted with sterile water the ordinary 2 per cent. solution employed. He found the syringe usually employed for this purpose would scarcely hold the 30 minims to inject, and the patient really received about 24 minims of a 1 per cent. solution. Analgesia was complete up to the knees in five seconds from the time of injection of this weak solution. In one minute after the injection the patient was placed with the head as low as possible consistent with his comfort; the analgesia in this case extended up to the level of the sixth rib. An incision was made at this point and the chest cavity opened. The last part of the operation was somewhat painful to him, particularly when the rib was being cleared and the intercostal nerve separated with the periosteum, showing that the intercostal nerve was not insensitive, while the skin surface was entirely so. One cannot always tell whether the deep analgesia is complete, although the skin surface seems to be insensitive. There was no vomiting, nausea, dizziness or vertigo, in spite of the head being placed in the low position. There was no increase in respirations and the pulse rate was rather lessened than increased.

DR. WM. BROWNING agreed with Dr. Fowler in his conclusion that the drug cannot produce this effect by its action upon the cord, but must produce it by its action on the nerve roots. Such action is favored by the fact that the spinal subarachnoidal space extends a little distance out along each nerve root. Some years ago he made a series of such injections and he remembered very well the effects produced. There will always be found distention around the posterior root extending further out than around the anterior or motor root. The injection extends along the dorsal root as far as the posterior ganglion and not beyond that; the anterior does not extend so far. If you draw a line across, it seems as if it were on an oblique plane—in other words, the posterior root is more exposed to the action of any drug thus injected than the anterior root.

Dr. Browning understood from Dr. Fowler that the tactile sense and heat and cold sense are not interfered with, at least not essentially. This being the case, it seemed to him that another conclusion must be drawn. The point arises whether the cocain may not act on the blood vessels and produce its anesthetic effect in that manner. If it does, presumably it would affect the whole

nerve. Now the reflexes are retained, and certain of the sensations are retained practically intact. How is that to be explained? If this has an action on the whole nerve the only method of explaining it would be a selective action of cocain on the fibers conveying the pain sense. There is to a certain extent a selective action of cocain when applied to the mucous membrane, but according to the speaker's recollection it interferes also with the other sensations to some extent. Nor could he see how cocain could penetrate the whole of the nerve. The colored solution used in his experiments penetrated the nerve but a very short distance in the dead subjects and not essentially further in monkeys that had just been killed. In the three to five minutes which it takes in many of these cases to produce anesthesia, the speaker was confident no cocain solution or any other solution would penetrate to the center of that nerve. It must have a penetrative power different from any of the solutions with which we experimented, or possibly act on the separate bundles just as they are entering the cord.

We know that in the spinal cord different sensations travel up different paths. Likewise it is known that from certain parts of the retina the fibers pass up a certain part of the optic nerve; and in connection with these posterior cord roots the speaker assumed that the pain fibers go up the external part of those roots. It is possible that the pain fibers of the visceral tissues do not go up the outside, but go through the deeper parts of the nerve root, and that may be one reason why in the visceral cases entire analgesia is not secured. The normal peritoneum is not very sensitive; and it is only the inflamed peritoneum that is, and it is the latter which Dr. Fowler has found sensitive in his operations.

If there is no mechanical injury to the cord and the effect is simply a temporary action of cocain on the periphery of these roots, the speaker could not see that any harm could result. If it acts in some way on the spinal cord itself it would be a different question; but he believed the safety of it is that it acts on these nerve roots and yet to but a limited degree.

In regard to the possible action of cocain through the vasomotors, Dr. Browning's idea would be, not that it acted on the vasomotors going to the extremities, but, if at all, simply on the blood vessels supplying the nerve root.

THE PRESIDENT: There are many questions with regard to this matter that must be considered. The question of how this anesthetic acts has been touched upon by Dr. Browning. What are the effects *per se* of the drawing off of the cerebrospinal fluid?

What would be the result of the injecting of this cocain solution into the substance of the cord? What of the possibility of untoward after effects? How high up in the spinal canal may this cocain solution be permitted to flow? May not there be dangers in the depressed head position after making these injections?

DR. L. S. PILCHER said that it would seem to have been thoroughly established that injections made as has been described would produce insensibility to pain in the lower part of the body, extending upwards well to the upper part of the thorax, and the manner of securing this insensibility to pain seems to be well established now by such experiments as have been detailed to us in the paper of the evening and in the considerable experience which is now beginning to accumulate from many sources upon this point. These are established points. Now the practical thing which is before us is to settle the actual domain in surgical work which this procedure is to occupy.

It is at once evident that it is a proper thing to pursue only in those cases in which the surgeon can with very great positiveness control the precautions for securing freedom from infection. That must limit it then very much. He could not see how the average surgeon or the general practitioner can ever feel that it is a proper thing for him to do—to attempt intra-spinal injections. All work in this line must be preceded by the most scrupulous and accurate cleansing and thorough aseptic technique which in its highest degree shall embrace every possible protection against infection. It is only when we can do that and when we can feel secure in that line that it would be proper for us to make these injections into the cavity of the membranes that envelop the spinal cord. There must be a very large proportion of cases in which, though we could secure the necessary freedom from pain, yet from other reasons it would seem better for us to have a general unconsciousness on the part of our patient rather than merely an insensibility to pain. Surely the surgical operations which we are in the habit of doing are attended with many things which we desire to keep from the consciousness of our patient beside the pain which might be inflicted. The possibilities of carrying out certain major operations, such as removing myomatous uteri, the operations upon inflamed appendices, operations for hernia and hemorrhoids have all been illustrated in these cases detailed in the paper of the evening. Dr. Pilcher was inclined to think, however, that after, by sufficiently abundant experiment, the possibilities of the procedure have been established, then we will begin to take into

account the elements involved, and that the field of the procedure will be very considerably restricted after all. What that shall be will have to be determined very largely by the individual surgeon, of course, as he performs his own work and appreciates the limitations of the peculiar conditions that attend each patient that presents itself for his interference. As we reflect, however, upon the possibilities which this procedure opens before us we cannot but feel that a very important new procedure has been established, one which can be availed of in many cases in which a general anesthetic might be disadvantageous.

DR. A. T. BRISTOW called attention to an article written some years ago by Van Giesen, entitled "Artefacts of the Spinal Cord." He took cords which had been transported across the city and studied the results, the injuries and distortions more particularly of the anterior and posterior cornua of the gray matter which occurred as the result of the manipulations and jarring incident to the transportation. He showed that the most extraordinary distortion of the gray matter of the cord could occur with the production of an artefact that might have been mistaken for disease, yet which was the result of the mechanical violence incident to transportation. One can imagine the number of artefacts that might be produced by the needle which having found its way into the substance of the cord injected fluid into it.

DR. ARTHUR H. BOGART said that as a result of a somewhat limited experience at the Kings County Hospital in the service of Dr. J. B. Bogart he should like to add a few more cases of subarachnoid anesthesia to those of Dr. Fowler. In all he had employed the method in six cases; and so far with satisfactory results, at least so far as any unpleasant symptoms are concerned.

His first case was that of a child of nine years old upon whom he operated for urethral caruncle and prolapse of the rectum. In this case he injected 15 minims of 2 per cent. solution into the subarachnoid space between the fourth and fifth lumbar spines, anesthesia was complete in about four minutes, the caruncle was removed, and the rectum touched with nitric acid, the operations occupying about twenty minutes. Before the operation the pulse was 90 and at the end it had reached 120. There was no vomiting.

Case II. Was that of a girl of about 12 years with a suppurating knee-joint, in this case the puncture was made in the usual manner but there was some doubt as to whether the fluid was obtained or not, this case was a failure so far as the an-

esthesia was concerned, and the operation was completed under chloroform.

Case III. Was a boy 14 years of age suffering from a tubercular disease of the bones of the foot. This case also failed, and the operation was completed under chloroform.

Case IV. A woman about 50 years of age, upon whom he operated for intestinal obstruction, due to malignant disease of the rectum and uterus. In this case he injected 20 minims of the 2 per cent. solution after the usual manner and obtained complete anesthesia in about four minutes. He made an inguinal colostomy, the operation taking about half an hour. She gave absolutely no evidence of pain and frequently asked questions during the operation with regard to her condition.

Case V. Was a boy with a right oblique inguinal hernia. In this case, which was five years old, the fluid seemed to be under considerable pressure and escaped from the needle with some force. He used 15 minims of the same solution, and obtained anesthesia in four minutes. This operation lasting half an hour, was completed with but little evidence of pain. It seemed, however, that handling the structures of the cord caused a little discomfort.

Case VI. Was the same as the one operated the first time for prolapse of the rectum. The result of the anesthesia was equally as satisfactory as upon the previous occasion, and this time he used the actual cautery in the place of nitric acid.

Up to date Dr. Bogart observed absolutely no unpleasant symptoms following the use of this method of anesthesia. None of his cases has vomited or complained of severe headache. The pulse in the first case went up from 90 to 120; in the others it came down, and was lower at the end of the operation than at the beginning. Whether or not this was due to nervousness he did not know. Cases two and three he did not consider as failures due to the method of anesthesia but rather as failures due to faulty methods. In all his cases in which there was no doubt as to the character of the fluid, he obtained satisfactory anesthesia. In the doubtful cases he did not.

Case one passed urine involuntarily two hours after the operation, but there has been no further trouble in that direction since then. In those cases in which it has been necessary to administer chloroform in order to complete the operation, it has followed the usual course evidently uninfluenced by the cocain injections.

DR. T. B. SPENCE said that the question as to the cases in which this can be used is one that has not been entirely decided.

There is a class of cases that Touffier has reported that have not been mentioned to-night. He has done some gall-bladder surgery and nephrotomies and nephrectomies. In one of his nephrectomies he had difficulty after the operation in persuading the patient that he was operated on at all. We had that experience once or twice. A girl that Dr. Fowler curetted went back to the ward and was told she could go to sleep and she did not believe that anything had been done. In one case that the speaker treated for hemorrhoids he had difficulty in persuading the man that an operation had been performed; and possibly some day we may have difficulty in collecting our fees from these cases.

DR. H. B. DELATOUR said that he could not speak from any knowledge of the method of injection, but he could speak from personal knowledge of the effects of cocain. The sensations of the period of nausea and depression can hardly be described. He had taken a general anesthetic and he had suffered the nausea and vomiting following it, and they are nothing to be compared to the feeling of depression which follows the acute poisoning by cocain. The action on the heart is peculiar; it was in his own case. If he had not known it was an impossibility he would have declared that his heart was taking somersaults. He never experienced and never wanted to experience again such a sensation. The after effects are prolonged and the effect on the nervous system is lasting. Even to this day, the very thoughts of the effects of the drug almost bring on an attack of nausea. It is now nearly ten years since he had his experience with it and it almost affects him to this day to use it, so intense was the impression produced. The nervous effects lasted nearly six months. While he had always prided himself on a certain degree of steadiness of muscle of his hand, for nearly six months following the effects of the cocain his hand was unsteady, and so unsteady that it was an annoyance to him.

Now, if the effect of the drug by subcutaneous injection can be as marked as that, it seems to him that it is entirely possible that some of these effects may be produced or appear following the use of the drug by the spinal injection, in persons peculiarly susceptible to the drug.

Dr. Browning had spoken of the effect as regards the relief of pain. Dr. Delatour had noted, not only in his own case, but in a number of instances, in fact in nearly all cases, that where cocain is injected the sense of feeling is not destroyed, while the sense of pain is absolutely destroyed. He believed that if the

patients were asked the majority would say that they can feel everything that is being done, although there is no sensation of pain.

DR. HENRY WALLACE said that the ill effects of cocain on the system are frequently met with by the throat and nose surgeon.

Probably most of them have seen after the application of a 10 per cent. solution, preliminary to some operation on the throat or nose, symptoms of cocain poisoning.

In some cases we notice that our patients become very talkative. Here the drug seems to act as a cerebral stimulant.

Professor Thomas R. French has no fear in the use of cocain and has no hesitation in making use of 30 and 40 per cent. solutions of this drug.

Although he states that his patients occasionally faint, he attributes this to the moral effects of the operation, rather than to any depressing effects of the cocain.

The speaker did not think there was a surgeon but has seen some ill effects from the use of cocain when used hypodermically for the production of a local anesthesia; and it is a curious thing that the same ill effects are not occasionally encountered when cocain is administered by the intra-spinal method.

As to the action of cocain on the vasomotor nerves as mentioned by Dr. Browning as explaining its action in the new method of anesthetization. We all know that cocain has decided astringent properties upon mucous membranes.

The speaker had wondered whether there is any diminution in the amount of hemorrhage at operations performed under this method of anesthetization.

DR. GEORGE R. FOWLER: As to the question of the advantages of the method he thought we all meet with cases in which one would very much prefer to operate without ether or chloroform than with it, and this perhaps is particularly true of cases in which there are pulmonary complications. He was sure it would have been excessively dangerous to have given a patient either ether or chloroform who was in the condition of the one on whom he operated this evening. One can recall instances in which it would have been very desirable to avoid the use of agents such as are now employed for general anesthesia. He had already mentioned in this connection the fact that some of the very cases in which the patient's condition is such that a general anesthetic should be avoided if possible—cases of general septic peritonitis, strangulated hernia, gangrenous appendicitis with perforation with shock

and collapse—the method does not seem to be applicable; nevertheless there are cases constantly occurring in surgical practice in which one, even with all the risks of the after effects—and the case is not at all proven against cocain—in which we would be willing to use the cocain solution with all the chances of possible ill effect from the injection itself, in order to escape giving chloroform or ether.

In Tuffier's 125 cases there was one case that died upon the same day that the operation was performed. A most careful autopsy was made in this case and it was found there were pulmonary and some other complications present which Tuffier asserted could not have stood in any relation to the agent employed to produce the analgesia. In 70 cases by Severeann there were no deaths, and in 125 cases by Pitesci there were also no deaths, although this last named surgeon stated that he believed that some deaths had occurred in Roumania from the use of the method. The speaker had been unable to trace in the literature any deaths that could be fairly attributed to the method.

As far as his own experience goes patients suffer less shock after major abdominal operations with this method than when ether and chloroform are employed. He had carefully examined the condition of these patients soon after the operation—immediately after the operation in some instances—and had been struck by the remarkable fact that their condition was vastly better than it would have been after the same operation performed under a general anesthetic. It is not uncommon after the subarachnoid injection method, he said, to find a patient who has been on the operating table upwards of an hour in a difficult abdominal hysterectomy, with a pulse of 85 or 90, and in one case 70, upon leaving the table, and not reaching above this until such time as the ordinary absorption of fibrin ferment would give rise to more or less temperature and pulse disturbances; and this in spite of the alleged depressing influences of the cocain.

As to the disadvantages: it is true it does interfere somewhat with teaching. In the first instance when he tried to use it before the class at the New York Polyclinic, he took occasion to go into an elaborate detail of the method of its employment, its advantages and disadvantages. The patient heard it all—she was exceedingly nervous and as he attempted to give the injection her spinal muscles became set and rigid and it was almost impossible to hold her quiet. He was finally compelled to abandon it altogether in this case.

Dr. Fowler went on to say that the patient should be placed in the recumbent position as soon as possible after the injection of the cocain. By placing the patient quickly in the recumbent or Trendelenburg position, an endeavor is made to get the admixture of the cocain solution with the cerebrospinal fluid as high in the canal as possible, particularly in an abdominal operation. He had noticed in cases in which this was not done quickly that nausea and vomiting had been more pronounced.

Moderate heat and ordinary cold as sensations are readily distinguished from each other, in his experience with patients under cocain analgesia by the intra-spinal method, but just as soon as the sensation becomes a painful one its painful character is abolished. This is shown by the fact that while a bottle of warm water held against the patient's buttock while under this analgesic agent is recognized as warm by the patient, the use of the thermocautery in the removal and cauterization of hemorrhoids is not at all painful. The patient does not even complain of the heat. In one case he thought the patient might be a little nervous because of the smell of burning flesh: he therefore remarked for her benefit that some one ought to call attention to the fact that the cook was burning the roast beef downstairs. She agreed with him perfectly, and thought it smelled dreadfully.

As to the applicability of the method from the aseptic standpoint we are yet to learn whether the meningeal surface is less susceptible than the other cavities of the body which we enter every day. A man who is properly qualified to do operative work at all is fit to do intra-spinal injection.

Mention has been made by Dr. Bristow of injection into the cord. These injections are never made into the cord. If they were, in all probability most of us would be deterred from making any attempt with the method. The injection is made into that portion of the spinal canal where the cauda equina floats freely in the cerebrospinal fluid and where it is almost impossible to puncture one of these filaments. You may possibly press one of the latter against the anterior bony wall and transfix it with the needle, but even in case this occurs it would be almost impossible to do damage.

The matter of individual idiosyncrasy has been mentioned by Dr. Delatour. The symptoms described by Dr. Delatour are not at all the common action of the drug; they are to be classed among the rare and unusual and extraordinary effects. With the large number of cocainizations carried on by rhinologists and laryngolo-

gists, and these latter frequently apply it in very strong solutions, to say nothing of the large number of dental operations done by those who have very little appreciation of the systemic effects of drugs, and who would be deterred from using these cocain compounds if the effects mentioned by Dr. Delatour were commonly observed. This can scarcely be used as an argument against the use of the method.

One of the most common effects of the drug, that of loquacity, is not observed in spinal analgesia. Patients remain very quiet as a rule and make no comment or even remark.

That patients suffer from syncope under the use of strong solutions of cocain is a well known fact, but patients also faint away without this. Cases come under observation in which syncope occurs as a result of the simple passing of a sound, or some equally slight operation. Even death has occurred under these circumstances; such instances are recorded. It is therefore not a matter of surprise when a serious operative procedure is undertaken that a patient faints away when no general anesthetic is given.

As to hemorrhage the speaker had been struck by the fact that there appears to be remarkably little hemorrhage in these operations. In the hysterectomy performed to-day there was less difficulty from bleeding, fewer vessels to ligate and fewer clamps to place in position than in any case of hysterectomy as extensive as this which had occurred in his recollection. And that is also true of incisions through the abdominal wall, as well as of incisions elsewhere. Whether it is the normal and natural condition that obtains, and ether and chloroform by their action on the vasomotors predispose to hemorrhage, he was not prepared to say; but it is true that the intra-spinal injections of cocain not only do not increase the tendency to hemorrhage, but appear to lessen it.

Perhaps the most interesting of all his cases is the one of this evening, in which only 25 minims of a 1 per cent. solution were used; just one-quarter of a grain of cocain. Half a grain to a grain is given by the stomach and no systematic effects follow with all the assistance that rapid absorption on the part of the stomach can give.

The use of antipyrine has been suggested in place of cocain. It is a well known fact that dentists employ mixtures of antipyrine and cocain in which mixtures there is only a small per cent. of cocain. Dental surgeons favor the use of these compounds because they contain but a small proportion of cocain. Dr. Fowler

had it in mind to experiment with a lesser dose of cocain and employ, in connection therewith antipyrine, quinine, ergotine, or some of the other drugs used in the lower animals which have been thought to be analgesic in these cases.

A CASE OF TETANUS; RECOVERY.

DR. A. T. BRISTOW presented a patient, aged 17, admitted to the hospital June 27, 1900. On June 8th he had wounded his foot with a splinter of wood. The patient says that about two weeks after the splinter entered his foot, after poulticing the foot with bread and milk poultices, the edge of the splinter protruded from the wound and he squeezed it out. Up to that time he had no indications of tetanus, but about a week after, at a period varying from nineteen days to a little over three weeks after the original wound the symptoms developed. The speaker saw the patient in consultation with Dr. W. M. Hutchinson and at that time trismus was marked; opisthotonos was present; and the gastrocnemius muscle of the injured leg was in a condition of spasm, so that the foot was very strongly extended and the great toe was in a position of hammer toe.

This, the speaker said, was a particularly interesting symptom, because it is exactly the condition which is found in laboratory experiments with animals. When a mouse is inoculated with a pure culture of tetanus, the inoculation is usually done to one or the other side of the median line, and the tetanic spasm always comes first on the side of the inoculated muscle. First, one hind leg becomes affected; subsequently the tail and the other hind leg become rigid, so the mouse can only get around by means of its fore paws. In this case there was a somewhat similar symptom group. When admitted the patient's back muscles were quite rigid; and at times he was in a state of opisthotonos. There were occasions when the muscular spasm would increase so that his back became not only rigid but *arched*, although he never at any time had anything approaching an actual convulsion. The rigidity was also found constant in the extensor muscles of the legs and feet; risus sardonicus was an ever present symptom; the temperature ranged from 100 to 100½.

The treatment was simple. The wound was laid open and dressed with a carbolic solution of 1½ per cent., renewed every three hours, day and night. The patient was also put by himself in a ward, all the doors of which but one were locked, and no one

was admitted to his ward at any time except the nurse and attendants; so every means was taken to preserve quiet and to avoid irritating the spinal centers. The only other treatment which the patient received was three-hour doses of bromide of sodium 40 grains and hydrate of chloral 20 grains. The amount of chloral was gauged by its effect on the muscular spasm, no attention being paid to whether the dose seemed excessive or not, the plan being to keep the muscles in a state of rest and at the same time keep up nutrition. For some days after admission at times his mouth was rigid so it could not be opened, and he was fed on milk. All the nourishment was taken by the mouth. In about ten days the trismus had disappeared, so he could open his mouth, although there was some slight rigidity of the masseters. In another week the muscles of the back became normal and the patient was able to bend his back, which up to that time he had been unable to do, resting on the bed in a perfectly rigid condition. The patient then returned home, but the Achilles tendon was still rigid, and for two weeks afterward he walked on his toe, then the spasm of the gastrocnemius muscle finally ceased and he entirely recovered.

Just about a week later there came into Dr. Bristow's service another case of tetanus in a boy of twelve. This case also belonged in the late group of cases, and a similar symptom appeared with relation to the site of the injury.

This was a toy pistol accident, a cartridge exploding in the palm of the boy's hand, which was thrown into strong flexion by the disease, exactly reproducing the same phenomena which occur in animal inoculation. The speaker had seen several other cases of tetanus, but these were the only cases in which he observed the special spasm of the flexor group of muscles nearest the injury. The same treatment was given this patient and for a time he did well, but he was of a vicious disposition, utterly uncontrollable, and finally as he did not like the chloral he refused to take it. To have forced it on him would have been to precipitate a fatal issue by inducing the spasms. He died in about ten days. If his disposition had been tractable, the speaker judged from the progress the case made while he was willing to take the large doses of chloral and bromide, he might also have secured a recovery there.

Dr. Bristow further observed that the point that is worth mentioning in both these cases is this: As a rule it is the late cases only which are amenable to any kind of treatment. The early cases die. He had never seen an early case of tetanus re-

cover. While he is a firm believer in the serum treatment of disease nevertheless he regards the serum treatment of tetanus as a total failure, the difficulty being to get the serum potent enough, or to give a sufficient quantity to do good. No attempt was made in these cases to make intra-ventricular injections of the antitoxin of tetanus, because the reports which had appeared in the journals were discouraging. If tetanus antitoxin had been given this patient, either by hypodermics under the tissues of the back or by the intra-ventricular method, it might have been claimed that we had here a success for the tetanus antitoxin, a conclusion which would have been erroneous.

We are by no means at the bottom of the etiology of tetanus. There are many things in which the laboratory work certainly does not coincide with the clinical cases. The first case of tetanus which he had seen was in St. Catherine's Hospital. There a boy had had his leg caught in a locomotive turn-table and crushed, and amputation was done immediately. Nevertheless, he developed tetanus and died, and while no tetanus organisms could be recognized about the site of the amputation, which healed *per primum*, nevertheless Dr. Wilson succeeded at that time in getting a culture from the blood of this patient, which tetanized animals.

Then there is a curious class of cases in which tetanus seems to develop in an open wound. The speaker recalled a case at St. Mary's Hospital. A man died there of tetanus, in which the only source of infection appeared to be an ulcer of the leg. How we can reconcile cases of tetanus of this class with the fact that tetanus bacillus is one of the strictest anaerobes we know in the laboratory, is yet a mystery. There is a recent explanation, which is this: that these cases of tetanus in open wounds are the result of symbiosis. Ernst in "Warren's Surgery" makes the statement that the probability is that the other bacteria exhaust the oxygen, so as to put the tetanus organism in an anaerobic condition. In the laboratory experiments it is necessary to have a complete absence of oxygen for the germs to grow; and their virulence varies to a great degree. Sometimes the organisms are extremely virulent and sometimes they are only slightly virulent; and therefore the same thing may be true of accidental infection which may occur sometimes with a very virulent germ which is rapidly fatal, and sometimes with a very mild organism.

Discussion.

DR. H. B. DELATOUR mentioned a case of tetanus which appar-

ently was due to the use of the hypodermic needle. A gentleman about 50 years of age who was addicted to the use of morphine by the hypodermic method, developed an attack of acute tetanus which was rapidly fatal. The only point for infection was through the use of the needle.

DR. BRISTOW stated that by the early cases he meant cases developing within the period of a week after injury. Cases developing a week or later after infection he called late cases. The more rapidly the disease develops after the original infection, the more severe will be the toxemia, the more virulent the germ and the more rapidly fatal the case, and the less the probability of cure by any means; whereas cases developing after a week or ten days become hopeful in proportion exactly as the period is longer than a week. Now this case which is shown to-night did not develop tetanus until nearly three weeks after the original infection. The other case which he spoke of as a hopeful case, except for the disposition of the boy, perhaps belonged to the early class of late cases; that is to say, he was on the border line. He just commenced at the end of a week to develop the tetanic symptoms, and was progressing very favorably under the treatment of chloral, when he refused to take the chloral and he died two or three days thereafter.

THE BROOKLYN PEDIATRIC SOCIETY.

WILLIAM A. NORTHRIDGE, M.D., EDITOR.

Regular Meeting, November 9, 1900.

The President, Dr. Henry N. Read, in the Chair.

This being the annual meeting, an election of officers was held. The following gentlemen were elected: President, Dr. E. H. Bartley; Vice-President, Dr. Jerome Walker; Secretary-treasurer, Dr. Frank Shaw.

Dr. W. A. Chapman read some notes on the treatment of infants by the Bartley method of feeding.

THE BROOKLYN SOCIETY FOR NEUROLOGY.

W. H. HAYNES, M.D., EDITOR.

A regular meeting of the Society was held October 25, 1900. The President, Dr. William Browning, in the Chair.

Dr. Fuhs read a paper on "Gastric Neurosis," an abstract of which is as follows:

Aside from the recognized forms of the neuroses of the digestive tract, such as the nervous dyspepsia of Leube and the gastrosynsis, etc., one meets not infrequently with certain groups of symptoms referred to the stomach and intestines, not associated with organic diseases of these organs.

The groups of symptoms to be considered here cannot be strictly designated as true gastro-intestinal neuroses, the circulatory and central nervous system being frequently involved in the functional disease.

They receive special consideration, not only on account of the characteristics acquired by the peculiar grouping and combination of the symptoms, but also by their demanding a different treatment for each group.

Otherwise they could be classed with one of the general neuroses.

Enteroptosis, defects of the abdominal muscles, atrophies, spasms, and retraction of these muscles, are frequently found to be associated with the neuroses here mentioned.

Group I.—Gastric hyperesthesia, attacks of pylorospasm, hypochondriac depression, sleeplessness, spastic constipation.

The following is a condensed history of a case, illustrating the characteristics of this group. Mr. ———, merchant, 30 years of age, married, good family history. He had "bilious" headaches at 14. Feared lues at 20, but did not present any evidence of that disease. Symptoms of nervous dyspepsia appeared at that time, with acute attacks of gastric disturbances, of which he gave the following description: A feeling of contraction at the left side of the umbilicus, with sharp, piercing pains at that point. Rapid distention of the stomach, obstinate constipation and inability to evacuate the gases from the bowels; nausea, pressure over the forehead, visual disturbances. Between the attacks he complains of pain and tenderness at the upper part of the epigastric region. He worries unnecessarily, is sleepless and depressed. Food, even the finest and simplest, distresses

him. He takes only milk foods and crackers. Appetite is very good. He is very tall and emaciated. Chest normal. Abdomen not specially tender. Slight motility of right kidney. No glandular enlargement.

Test meal, one hour. T. A., 80; free Hcl+. Mucous increased. Quantity, 60.

Treatment.—Abdominal support, diet of hyperchlorhydria, lavage, alkalies with guaiacol carbonate, oil enemas.

The following was the treatment of the attacks: Lavage, hot fomentations to the abdomen, oil enemas, bromides.

He gradually improved and gained in weight. Takes steak, milk food, and bread.

Group II.—Hyperchlorhydria, peristaltia, unrest, obstinate constipation, gastropnoia, prostration, appetite and sleep unimpaired, defects of the abdominal muscles.

Treatment.—Abdominal support, rest, alkalies, and guaiacol carbonate. Massage and faradization of the abdominal muscles, and Kussmaul's oil injection.

Group III.—Gastralgia, hyperchlorhydria, gastric motor insufficiency, pylorospasm, painful retraction of the abdominal muscles, spastic constipation.

Treatment.—Diet of hyperchlorhydria. Lavage only, if required for the removal of stagnating foods. Bromides, nitroglycerin, hot fomentations systematically applied.

DISCUSSION.

Dr. R. M. Elliott, in discussing the paper, said he was very much interested in this important subject, as he saw many cases of neurotic dyspepsia in mental diseases, and most frequently in one form, namely, acute melancholia, many cases absolutely refusing food in some cases—perhaps suicidal—but he believed in many cases there existed a morbid condition of the stomach, for, after feeding them, the food would be regurgitated even involuntarily. Auto-intoxication is another feature in these cases, and also of epilepsy, and are closely related and more common in women than men; for this condition we employ lavage, cathartics, and intestinal antiseptics.

Dr. E. D. Fisher, of Manhattan, by invitation, read a paper on "Acute Myelitis," which was discussed by Drs. Brush, Winfield,

and Fuhs, and after a vote of thanks to the reader, the Society adjourned.

THE BROOKLYN SOCIETY FOR NEUROLOGY.

W. H. HAYNES, M.D., EDITOR.

The regular meeting of the Society was held December 27, 1900.

The President, Dr. William Browning, in the Chair.

Dr. Hiram Elliott, Superintendent of the Marshall Sanatorium, Troy, read a paper on "The Present Status of the Thyroid Extract in Therapeutics," discussed by Drs. Combes, R. M. Elliott, Morton, and Brush.

The Committee on "The Proper Care and Treatment of the Inebriate" reported through Dr. A. C. Brush the acceptance of Dr. George Brush's bill, with certain additions.

It being the annual meeting, the Secretary, Treasurer, and Librarian read their reports, which were accepted and ordered placed on file.

The dues for the ensuing year were fixed at \$2, and at the election which followed the following gentlemen were chosen for the ensuing year: President, Dr. W. H. Haynes; Vice-President, Dr. R. C. F. Combes; Secretary and Treasurer, Dr. B. Onuf; Librarian, Dr. W. H. Haynes, and Editor, Dr. B. Onuf.

Editorial Item.

As showing how the smaller societies and sections can help supply and increase the scope and value of the Library of the mother society of the County of Kings, the following is reported as one year's contribution from the Neurological Society, namely: A year's file of the *Zeitschrift für Nervenheilkunde*, *Archives de Neurologie and Brain*, a complete set of the "Transactions of the Americo-Psychological Society," other volumes, and thirty-one pamphlets.

LONG ISLAND MEDICAL SOCIETY.

E. E. CORNWALL, M.D., EDITOR.

The 98th Regular Meeting was held on the Evening of December 4, 1900.

The President, DR. A. C. BRUSH, was in the Chair.

The following officers were elected for the ensuing year:

President, Dr. A. C. Howe.

Vice-president, Dr. W. S. Hubbard.

Treasurer, Dr. R. H. Pomeroy.

Secretary, Dr. J. C. Hancock.

Trustee, to serve for three years, Dr. H. N. Hoople.

The Trustees holding over are Dr. W. F. Campbell, to serve for one year, and Dr. E. E. Cornwall, to serve for two years.

SCIENTIFIC PROGRAM.

The Treatment of Children.

By Dr. W. H. Clowminzer.

In this paper Dr. Clowminzer said that infants and children, owing to their frailty and rapid growth and development, were particularly liable to disease; that the nervous system, especially in infants, was so sensitive that irritation of a single organ often extended to all the others; *e. g.*, an overloaded stomach or an intestinal worm often giving rise to severe vomiting, high fever, and convulsions. He emphasized the importance of properly feeding the infant, and thought that when the mother's milk was not available, modified cow's milk should be given. The wet nurse he considered impracticable, if not undesirable, in the great majority of cases. The use of condensed milk and the dried milk foods he condemned.

For convulsions due to teething he recommended in the milder cases a soap and water enema, and in the severer cases chloroform and, occasionally, chloral. For swollen and painful gums he recommended rubbing with diluted tincture of myrrh, and for sore mouth a mouth wash of potassium chlorate or some one of the mild and pleasantly flavored antiseptic preparations now on

the market. Lancing the gums he had very rarely found necessary. For constipation he employed hygienic measures and modification of the diet in preference to drugs, whenever possible. In the treatment of infantile diarrhea he believed bismuth to be the sheet anchor. In every attack of vomiting, anorexia and fever, with perhaps convulsions, he advised informing the parents of the possibility of some one of the infectious children's diseases supervening.

He spoke of the advantages to be obtained by examining infants when asleep, when can be appreciated much more easily the significance of the general appearance, the expression of the countenance, the color of the skin and lips, the eyes, if partly open, the presence or absence of moaning or grinding of the teeth or twitching of the muscles, the number and character of the respirations, and the pulse.

He spoke of the importance of gaining the confidence of older children before examining them, and condemned the practice of some mothers who try to quiet unruly children by threatening to send for the doctor "to give them nasty medicine," thereby preparing the child to fear and resist the doctor when he comes to attend them in sickness.

He thought it good practice in all cases to look at a child's throat, using a spoon handle to make the child gag when coaxing will not persuade the child to open its mouth and thrust out its tongue. In this connection he advised always being on the outlook for adenoids or enlarged tonsils, which often cause children's troubles.

In conclusion, he alluded briefly to the surgical treatment of children, and spoke of the possibility of a belly-ache in a child meaning appendicitis or intussusception, and of the relief chorea and kindred troubles sometimes receive from circumcision.

Dr. Clowminzer's paper was discussed by Drs. A. C. Howe, E. Hodges, N. L. North, Jr., C. L. Kerr, P. C. Jameson, L. N. Nichols, H. N. Hoople, and E. E. Cornwall.

Dr. Howe said that older children were often able to open their throats for examination without a spoon being used. When a spoon was used he warned against pressing it down on the front part of the tongue, and said it should be placed far back, so as to make the child gag.

Dr. Hodges condemned absolutely the use of condensed milk in infant feeding. He said that all the cases of infantile rickets and scurvy observed in his clinical experience had been fed on

condensed milk. He thought babies so fed were unable to resist sickness as well as others.

Dr. North thought that children when in health should be taught to open their mouth and show their throat as a trick, so as to make easy their examination in sickness.

Dr. Kerr spoke of the necessity for care in diagnosis, and the undesirability of giving any treatment until the diagnosis is established, except such as may be necessary to relieve urgent and dangerous symptoms. He advised looking carefully into the patient's nutrition and environment, correction of which may be sufficient to cure in many cases without medical treatment. He warned against giving children too large doses. He considered hydrotherapy particularly useful in children's diseases. In the diarrhea of infants and children he considered flushing out the intestine and administration of small doses of guaiacol the most useful procedures. He thought that in surgical operations on children rapidity of operation was desirable, and he recommended isolating every child to be operated on for a sufficient period before the operation, to prevent the possibility of one of the infectious diseases developing during convalescence from the operation.

Dr. Nichols thought that in view of the fact that artificial feeding kills more babies than all other causes, mothers should always nurse their babies if possible; and he thought that a wet nurse was next best, modified cow's milk coming third. He condemned the use of artificial foods alone.

Dr. Hoople spoke of the necessity for early diagnosis and vigorous treatment in cases of the grip in children. He also cited cases which had come under his observation of cyanosis, and almost asphyxiation from adenoids, and a case of gonorrheal ophthalmia in an infant born with a caul.

Dr. Cornwall spoke of the value of aconite in diseases of children. He used it as a febrifuge and sedative, and found it especially useful in acute inflammations of the respiratory tract. He advised its administration in small doses, frequently repeated—much smaller doses than those ordinarily given. In speaking of the comparatively great susceptibility of children to drugs, he cited a case in which light painting of enlarged cervical glands with tincture of iodine daily for five days produced in a child of four years marked symptoms of systematic poisoning with iodine. In this case the iodine rash was confluent over trunk and upper part of the thighs, but discrete and characteristic in appearance on the face and extremities. The fever was between 103° and 104° .

during the first day, but rapidly fell, and in a few days the eruption had noticeably faded, though it did not entirely disappear for over a week. The patient was a pronounced blonde, and probably had an idiosyncrasy in regard to iodine.

Dr. Jameson, in discussing the care of the eye in childhood, said that in regard to the prophylactic treatment of ophthalmia neonatorum at the time of birth, he believed that individual experience ought not to be the guide, because many physicians with large practices might see only a few cases of this disease. But, viewing the subject in its entirety, and considering how large is the percentage of inmates of institutions for the blind whose blindness is caused by this disease, he thought that every precaution should be taken against it. He thought that the fact that no external evidence of a specific discharge before or after labor could be found, did not contra-indicate the routine use of prophylaxis, because the absence of such evidence was not conclusive against the existence of infection, according to the best genito-urinary authorities. He pointed out the danger of waiting until symptoms of ophthalmia appeared before applying treatment, on account of the rapidity of onset of the disease, which appears in full-fledged virulence before any premonitory symptoms are noticed. He also dissented from the opinion held by some, that routine prophylaxis for ophthalmia neonatorum is only necessary in hospital practice, because gonorrheal infection is prevalent in the better class of patients, as well as in the class that go to hospitals. He believed nitrate of silver was the best prophylactic agent that we had for this disease. In speaking generally of prophylaxis of the eye, he expressed himself as being thoroughly convinced that one of the greatest safeguards against infection of the conjunctiva with the more virulent diseases was the maintenance of the conjunctival sac in a healthy condition, for in that condition the conjunctiva possessed great bactericidal power, while an inflamed condition, by altering the quality of its secretion and causing a sanguineous exudate, supplied pabulum for bacterial development and predisposed to infection.

A New Method of Operation for the Radical Cure of Inguinal Hernia.

By Dr. W. E. Butler.

As Dr. Butler's paper will be published in full elsewhere, no further report of it is given here. It was discussed by Drs. W. F. Campbell and J. O. Polak.

LONG ISLAND MEDICAL SOCIETY.

E. E. CORNWALL, M.D., EDITOR.

The 99th Regular Meeting was held on the Evening of January 2, 1901.

The President, Dr. A. C. HOWE, was in the chair.

The scientific program was as follows:

Remarks on the Treatment of Lobar Pneumonia.

By Edward E. Cornwall, M.D.

In this paper Dr. Cornwall told how he himself treated pneumonia symptomatically, on the expectant plan; but before doing that he discussed briefly a few recent suggestions in the line of specific pneumonia therapeutics. The anti-pneumococcic serum of Klemperer he did not believe would prove of very much value, because, in his opinion, the toxemia is a much less important element in pneumonia, considered clinically, than the solidified lung. Treatment with large doses of digitalis, as recommended by Putresco and others, he condemned as theoretically contra-indicated. On the use of guaiacol, creosote carbonate, salicylic acid, and other similar drugs, in large doses for anti-septic effect on the pneumococcus, he reserved his opinion pending further enlightenment; but he did not think it possible that the toxemia of pneumonia could be more injurious to the patient than the large doses of salicylic acid recommended. Of his further remarks, the following is a brief summary.

The prophylactic treatment of pneumonia consists in keeping weakly and diseased people away from the patient, washing the patient's hands and face frequently, tying towels around his neck to catch stray sputum if necessary, receiving sputum into sputum cups or gauze handkerchiefs, which can be burned, and disinfecting matter vomited.

A patient with pneumonia should be kept in the horizontal position from the beginning of the disease until at least a week after defervescence. He should not be disturbed by too frequent examinations. His diet should be fluid, until after defervescence. A full sponge-bath should be given once a day, except when his condition is such as to make the slightest disturbance dangerous. Good ventilation is of prime importance.

Throughout the entire course of the disease water should be given to drink in large quantities, in order to wash out the increased amount of excrementitious matters and the toxins in the blood, to minimize the irritation and congestion of the kidneys, due to the increased work of excretion thrown on them, to improve the circulation, to supply plenty of sweat to be evaporated on the surface of the body, thereby cooling it, and to act (taken cold) as a direct refrigerant.

A pneumonia jacket of cotton batting between oiled silk is soothing and a safeguard against exposure.

The bowels should be opened with calomel, followed by salts at first, and kept open throughout the disease with salts or enemas, if necessary.

Indigestion should be guarded against, and treated on general principles, if it arises. It is often a result of over-feeding. Vomiting at the beginning of the attack does not call for treatment unless it persists.

The urine should be examined every two or three days, and if symptoms of renal congestion are marked, a saline diuretic, and poulticing or dry-cupping of the lumbar region are called for.

In the stage of congestion an attempt should be made to arrest the disease. The local congestion should be relieved by lowering the general blood pressure. Blood letting is effective, and suitable in some cases, but, in general, calomel and a saline, aconite, and cupping are better treatment. The aconite should be given in very small doses frequently repeated, and should not be continued after the stage of congestion. Cupping may be wet or dry. For continued or frequent application dry cupping is preferable, but to be effectual it must be thorough. The chest should be kept covered with cups, which are constantly renewed. Cheap tumblers of thick glass are suitable for the purpose. It is difficult or impossible to properly cup very thin people.

After consolidation has taken place we should try to prevent extension of the disease, promote resolution, alleviate symptoms, and support the patient.

Séances of dry cupping, continued at short intervals throughout the disease, may be of great value in preventing extension and promoting resolution.

Pain and restlessness may be alleviated by cupping, wet or dry, hot poultices or cold applications, and morphine. If the restlessness is so great that the patient suffers from lack of sleep, morphine should be given; for lack of sleep in the early part of

the disease, by weakening the patient, may be a sufficient cause for his failure at the crisis.

Fever seldom calls for anything more than a sponge-bath. If excessively and persistently high a cold pack may be given.

The danger spot is the heart. It is affected to a certain extent by the general toxemia, but to a much greater extent by the mechanical obstruction in the lungs. It needs stimulation in most cases; but stimulation should not, as a rule, be given in the congestive stage. It should be begun cautiously, and increased to meet the needs of the case. It should not be delayed too long. The best drug is strychnine. With this drug, with whiskey, digitalis, and aromatic spirits of ammonia, with morphine and oxygen, which two are notable heart stimulants, we can stimulate the heart as well as with any drugs in the pharmacopeia.

Dyspnea, if considerable, calls for inhalations of oxygen; and the inhalations should be given continuously if the dyspnea is extreme. Giving routine inhalations of oxygen for ten-minute séances, at short intervals throughout the disease, is good treatment.

Pulmonary edema calls for oxygen, increased heart stimulation, and vigorous cupping.

Beware of giving too much treatment in the early stages of pneumonia, and too little at the time of the crisis.

Report of Two Cases of Double Lobar Pneumonia.

By Edward E. Cornwall, M.D.

One of these cases showed no fever during its course, and the other had, presumably, only one kidney. The first died in the congestive stage, and the other, after running an unusually severe course, completely recovered.

The first case occurred in the Manhattan Beach Hotel in July, 1900. The patient, a man of 55, presumably in fairly good health, was taken in the night with vomiting and purging. At 7 the following morning he was first seen by the writer. Then his temperature was normal and his pulse but slightly accelerated. His diarrhea had ceased, but his nausea continued. He complained of a slight chilliness, but neither of pain nor cough. His face had a slightly dusky hue. Aromatic spirits of ammonia and bismuth were given to him. Seen two hours later, he was found to have a slight, dry cough, no fever, and an acceleration of the

pulse to about 100. Over the lower lobes of both lungs fine, crepitant râles and bronchovesicular breathing were discovered. His face was still dusky. Strychnin, whisky, and aromatic spirits of ammonia were given, and preparations were made for cupping; but before the cupping could be done the patient suddenly complained of great restlessness, had an unusually violent spasm of coughing, during which he sat up in bed, developed pulmonary edema, and, in less than a minute from the time he complained of restlessness, fell back on his pillow dead.

The second case occurred in a female, twenty-five years old, unmarried, who was admitted to the Williamsburg Hospital in October, 1900. In 1891, according to the positive statements of the patient, her brother, and sisters, her left kidney was removed in a hospital in Hamburg, Germany. For what cause this was done could not be ascertained, but the patient said that blood had appeared in her urine before the operation. She recovered completely after the operation, and was in good health immediately before the present attack.

This case ran a regular course and defervesced on the seventh day. The disease involved only the left lower lobe at first, but on the second day extended to the right lower lobe. This case was characterized by the severity of the symptoms. The temperature, as the crisis approached, ranged very high, being between 104° and 106° during the twenty-four hours preceding defervescence. The pulse-rate, during this same period, ranged between 120 and 150, being near 150 most of the time. The respiration rate during this period continued between 60 and 70, and during most of the time before was very high. There was acute congestion of the kidneys, with considerable albuminuria, which completely cleared up after defervescence. There was pulmonary edema at the time of the crisis. Vomiting at first, and later great pain and restlessness, were prominent symptoms. For nearly two days before defervescence the patient's condition seemed hopeless.

The particular features of the treatment were: copious administration of water to drink throughout the disease, continuous application of dry cups at short intervals throughout the disease, and continuous inhalations of oxygen for two days at the time of the crisis. For stimulation of the heart, strychnin, whisky, aromatic spirits of ammonia, and digitalin were used, the strychnin and digitalin hypodermically. Morphin was required as a sedative.

The recovery of this patient was something of a surprise, and the writer likes to think that it was in some degree due to the copious water-drinking and vigorous cupping. It is certain that without continuous inhalations of oxygen at the time of the crisis the patient would surely have died. That the loss of one kidney (if we can credit the testimony as to its loss) did not prove a fatal handicap in so severe a case as this is certainly an interesting fact.

Dr. Cornwall's paper and case reports were discussed by Drs. A. C. Howe, C. L. Kerr, W. A. Tones, and R. J. Morrison.

Dr. Howe gave testimony concerning the value of creosote carbonate in pneumonia; he used it in several cases, and speedy defervescence followed. He also cited a case of pneumonia in a man over eighty, who was treated with oxygen inhalations from the beginning, and recovered.

Dr. Kerr advocated using small doses in pneumonia. He thought that over-medication and over-feeding were the commonest mistakes made in treating this disease. He thought highly of the cold pack, especially in treating bronchopneumonia in children.

Dr. Tones spoke of the great efficacy of cupping in relieving the initial pain of pneumonia and the dyspnea.

Dr. Morrison disapproved of the use of digitalis in pneumonia, and the oiled jacket; he thought strychnin and oxygen our two most effective remedies.

Dr. Cornwall, in conclusion, gave his opinion that digitalis was not indicated in the early stages of pneumonia, but was a very useful auxiliary heart stimulant given in moderate doses at the time of the crisis.

A Case of Mastoiditis and Lateral Sinus Thrombosis: Operation and Recovery.

By Burnett C. Collins, M.D.

Dr. Collins' report was, briefly summarized, as follows:

Male, 20, jockey, was struck in the right ear by gravel. The gravel was picked out of his ear, but earache followed shortly afterward, and later slight discharge. Earache and a severe frontal headache occurred frequently, and they increased in severity in spite of irrigation of the ear with borax solution and the exhibition of analgesics.

Four weeks after the original injury, when first seen by Dr. Collins, examination showed ear discharging slightly through a large posterior perforation of the drum and a polyp protruding. There was redness over the mastoid, and severe pain on pressure over the antrum. The polyp was removed, ice applications made over the mastoid, and the ear syringed with warm water. Morphine was required to quiet the severe pain.

Three days later the usual operation for acute mastoid abscess was performed. The outer table was found to be hard, but below was extensive necrosis, reaching to the tip, and exposing the dura, above and backward, and the lateral sinus for the full length of the mastoid. All necrotic material was removed, and the opening into the antrum enlarged. The sinus was felt to pulsate, but as there was no reason at this time to suspect trouble with the vessel, it was not interfered with. The wound was packed with iodoform gauze. Temperature one hour before the operation was 101° ; three hours after, 102° . It then gradually returned to normal. Patient felt very well, but pulse-rate was between 48 and 62 for two days. Wound was dressed on the fourth day, and patient went home on the fifth. That night he had a chill and rise of temperature to 104° . Next morning the temperature had fallen to normal, but there were frontal headache and dizziness when lying down. Temperature rose again in the afternoon to 105° , and infection of the lateral sinus was suspected. The sinus was aspirated and found to be empty. It was opened without an anesthetic, and a well-organized, straw-colored clot removed. Copious hemorrhage from above, and slight hemorrhage from below, were controlled by packing with iodoform gauze. The wound closed in six weeks with no other complication than inflammation and suppuration of the cervical glands.

Dr. Collins thought that in thrombosis of the lateral sinus early diagnosis and prompt operation were necessary for success. He thought that ligation of the jugular was unwise when the clot was firm, the blood current established from below, and no stiffness in the neck.

Dr. Collins' paper was discussed by Drs. W. C. Braislin, C. R. Hyde, J. O. Polak, and S. H. Lutz.

Dr. Braislin cited a similar case, in which he tied the jugular. Meningitis and death followed.

Dr. Hyde raised the question whether the rise of temperature in Dr. Collins' case could be partially explained by the absorption of iodoform from the gauze packing.

Dr. Polak thought that poisonous absorption was much more likely from glycerinized than from dry iodoform gauze.

Dr. Lutz said that when the lateral sinus was considerably exposed phlebitis was to be looked for. He thought in phlebitis a fever factor due to iodoform absorption might easily be overlooked. He preferred plain, sterilized to iodoform gauze in these cases.

Dr. Collins, in conclusion, said he had seen iodoform gauze give rise to irritation, but never to fever.

History of a Case of Typhoid Fever, with Complications.

By George R. Hawley, M.D.

The history of Dr. Hawley's case, briefly summarized, is as follows:

Male, 30. Previous health excellent. When first seen, the patient had a temperature of 99.5° and a pulse-rate of 90, and the subjective symptoms regularly found early in the first week of typhoid fever. These symptoms all increased in severity during the first week, except the pulse-rate, which was most of the time between 80 and 90. Constipation was a marked symptom throughout the disease. The eruption did not appear until the end of the second week, and was thereafter kept up by continually recurring fresh crops until the end of the disease. A little blood appeared at different times in the stools, which was due to constipation and straining; there were no signs of intestinal hemorrhage. Paralysis of the bladder occurred during the third week and lasted for seven days. The fever, after running a regular course for four weeks, subsided, and remained normal for several mornings, when a relapse took place, which lasted three weeks, reducing the patient to a very low condition. During the relapse thrombosis of the left popliteal vein occurred. Under treatment the pain and swelling were reduced in a week, and at the end of two weeks they were almost entirely gone. The most remarkable phenomenon observed in this case was seen at the end of the seventh week, when the temperature had been normal for several days after the relapse was over. During the washing away of a collection of smegma around the glans penis the patient was taken with a chill, which lasted half an hour, and was followed by a rise of temperature to 105° , and of pulse-rate to 120. Physical examination revealed no adequate cause for

these symptoms, and they subsided in twenty-four hours. They were, no doubt, due to a disturbance of the nervous system. The patient made a good recovery.

Dr. Hawley's paper was discussed by Drs. H. T. Hotchkiss, W. A. Tomes, W. C. Schoenijahn, R. H. Pomeroy, A. C. Brush, and E. E. Cornwall.

Dr. Hotchkiss commented on the fact that typhoid was brought to the city from the country.

Dr. Tomes spoke of the fact that just before the beginning of convalescence typhoid patients pass a large quantity of urine.

Dr. Brush cited a case of a typhoid patient who was sent home to England cured from South Africa lately, and who started an epidemic in the village in which he stayed. His urine was found to be full of typhoid germs.

Dr. Schoenijahn cited a case in which hemorrhage occurred from the stomach as well as from the intestines.

Dr. Pomeroy cited a case in which there was great irritability of the bladder without pyuria, and the general symptoms of typhoid fever. The Widal reaction was negative, but the urine was found to be full of typhoid bacilli.

Dr. Cornwall cited a case in which a mild fever course was followed by twelve days of subnormal mouth temperature— 95.3° to 97.5° . In this case the heart muscle was so flabby that the first sound could not be heard for a time. Complete recovery eventually took place.

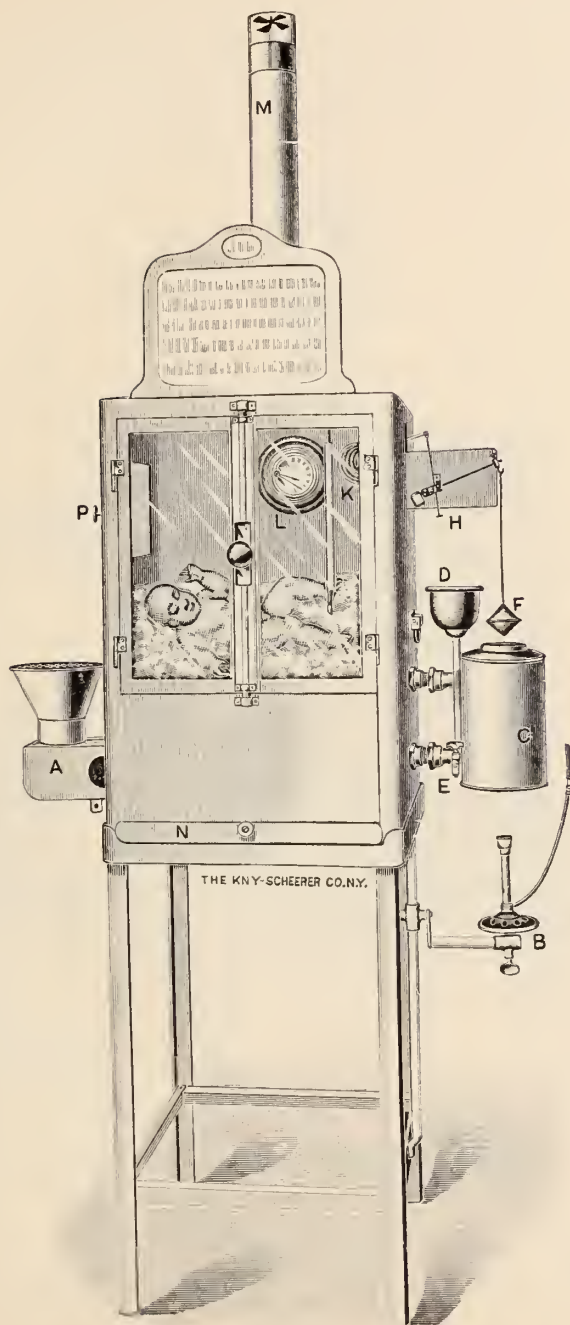
CORRESPONDENCE.

DELION INCUBATOR AT LOW MATERNITY HOSPITAL.

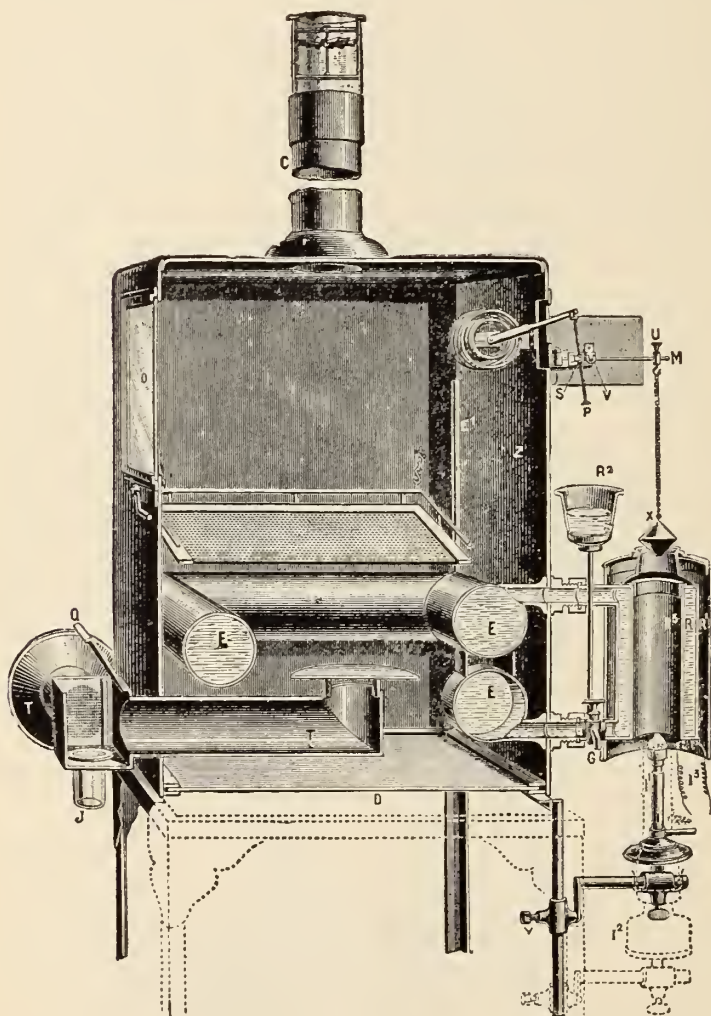
To the Editors of the BROOKLYN MEDICAL JOURNAL:

Through the generosity of Mr. William G. Low, its principal benefactor, the Low Maternity Hospital has come into possession of an incubator made after the most approved pattern. The model is that of Prof. Dr. de Lion, of Paris, but the makers, The Kny-Scheerer Co., have improved the regulating device, making it the most perfect, elaborate, yet simple, arrangement for the care of premature infants now made.* As this is the only

* Dr Markoe of Manhattan, who has charge of the equipment of the new maternity being built by the generosity of Mr. J. P. Morgan, has investigated most thoroughly all the forms of incubator in use and has found this one of Dr. de Lion the most perfect.



incubator of its kind in Brooklyn I thought it would be of interest to your readers to call attention to it. In private practice, with the inadequacy of all possible means for maintaining life in infants born prematurely, the mortality is very high. Even with the conveniences hitherto in use in maternities, less than 20 per cent.



of those born at six and a half months, about 42 per cent. at seven months, and 65.4 per cent. at eight months, survive. With an apparatus of this careful construction these feeble lives may be carried forward to full development in greater numbers than



STEPHEN CHANDLER GRIGGS, M.D.

is otherwise possible. No doubt members of the profession will be glad to learn that there is this refuge for cases which from any cause are brought to premature confinement. They may be sent to the Brooklyn Hospital either in the private rooms or public wards, so that the premature infant may be given the best attainable care. The accompanying illustrations show the arrangement of this apparatus.

Heat is obtained from hot water circulating from the cylinder *C*. The Bunsen burner *B* is placed beneath the hollow center of this cylinder. The height of the flame is regulated automatically. Within the living chamber are placed the thermo-regulator, a thermometer and hygrometer *L*. At *P* is a sliding door for feeding the infant. The revolving wheel *M* in the chimney indicates the perfect circulation of air. The box *A* is for filtering the intake of air. Moisture of the air is maintained by keeping a glass (*J*) placed in the bottom of this box filled with water. In the improved apparatus there is also a pipe opening into the living chamber from the body of hot water beneath it. Other parts of the apparatus are so clearly shown in the cuts that they are self-explanatory. Members of the profession are welcome at any time to inspect this apparatus, and the other equipment of the Low Maternity. With this important addition the equipment of the Low Maternity is very complete for meeting all possible obstetric emergencies.

FRANCIS H. STUART, M.D.

123 Joralemon street.

HISTORICAL DEPARTMENT.

STEPHEN CHANDLER GRIGGS, M.D.

In the death of Dr. Griggs the profession of Brooklyn lost its oldest living member. For, though the infirmities or advancing years compelled him to retire from active work five years ago, he was still occasionally seen here and retained his old attachments.

Dr. Griggs was born at Pomfret, Conn., Sept. 11, 1819, and died at Nutley, N. J., Feb. 1, 1901. He was buried near his early home in Connecticut. His grandfather was Capt. Griggs of the Revolutionary army under Gen. Danielson. The

Doctor was twice married, first to Miss Ellen Day, who died three years later, and in 1860 to Miss Harriet Backus, who had been at the head of the English department at Packer Institute; she died in 1888. He left one child, Mrs. C. H. Genung, of Nutley, N. J.

He prepared for college at the old Suffield Literary Institute, finishing at Brown University in 1840. At Suffield he had as a room-mate, the late Rev. S. Dryden Phelps, subsequently a well-known Baptist divine. While teaching, he studied medicine under various preceptors in Maryland and Connecticut, and subsequently under the late Dr. W. Detmold, of New York, and took his degree at the University of the City of New York in 1849. He then practised for some years in Killingly and Danielsonville, Conn. At the latter place he was a founder and President of the Public Library, one of the earliest (1854) and most prosperous institutions of its kind and one that has recently received an ample endowment. In 1860 he removed to Brooklyn. Here he acquired one of the largest practices on the Hill. He was Attending Physician to the Brooklyn Orphan Asylum and to the Home for Destitute Children, and Consultant to the Central and the Bedford Dispensaries, and, of course, a member of the County Society.

Dr. Griggs was a man of large physique, a great lover of outdoor life, and an enthusiastic woodsman with rod and gun; a "marvelous" shot who could be trusted to bring down both birds when two had been flushed at once. Specimens mounted by him are still preserved at the Library mentioned above. With this he was an excellent botanist, a characterization that once more than now belonged to the best physician. "There was no flower nor plant nor tree that he did not know about."

He was beloved, especially by the children, not less devotedly by the many of all classes who sought his help, and by those of his fellows who had the advantage of his acquaintance. The calls of the poor he heeded quite as much as of the rich. In his wide experience and years of practice he had worked out many medical problems of importance, though with a modesty too common in Brooklyn men he communicated his knowledge privately rather than by formal papers. He was among the first, years ago, to discard the old methods of handling fevers and give instead both water and a modicum of food. He early perfected methods for removing foreign bodies from the ear and nose. Numerous samples of his sim-

ple needle-scarifier are still in use. For many years he had taught his students the facts regarding the now recognized subluxations of the radius. His chief reputation was perhaps as an obstetrician. Of the students to whom he acted as preceptor or adviser, two may be mentioned: his nephew, Dr. F. E. Guild (Kings County Staff, 1899-1890) now a very successful practitioner in Eastern Connecticut, and Dr. S. B. Lyon, a nephew of Mrs. Griggs, now Superintendent of Bloomingdale.

His familiar salutation with the uplifted hand open towards you was characteristic. To those who knew him well it may have interest to note that, while he always opposed the smoking habit, yet in the final years of his life he found solace to some extent for his retirement in gentle patronage of the weed.

W. B.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

At the Brooklyn Hospital Dr. Thomas R. French has been appointed consulting laryngologist; Dr. Frank Ferguson, consulting pathologist; Dr. J. S. Prout, consulting otologist; Dr. P. C. Jameson, visiting ophthalmologist, and Dr. John E. Shepard, visiting otologist. In the dispensary, Dr. Russell S. Fowler has been made chief of the surgical clinic, and Dr. N. P. Rathbun appointed to the medical clinic.

Dr. Ernest Palmer has been appointed consulting gynecologist, and Dr. Charles Dwight Napier, orthopedic surgeon to the Kings County Hospital.

The surgical division has been increased from four to six at St. Mary's Hospital, and Dr. J. Richard Kevin made surgeon,

with Dr. John A. Lee, associate; Dr. E. Arthur Parker, surgeon, with Dr. Robert J. Morrison, associate; Dr. J. P. Murphy and Dr. Thomas F. Mylord, associate surgeons.

Recent changes have been made in the anatomical department of Long Island College. Dr. Wm. Francis Campbell has been appointed professor of anatomy; Dr. Warren S. Simmons, assistant professors; Dr. Richard W. Westbrook, clinical professor of orthopedics and lecturer on anatomy; Drs. Charles B. Bacon, lecturer on anatomy; Drs. Wm. L. Chapman, W. J. Cruikshank, W. L. Duffield and Wm. H. Jewett, demonstrators of anatomy.

Those securing positions as internes at the Brooklyn Hospital are: Frank L. Cochran (P. & S.), Wm. E. Coffee (Rush Med. Coll.), David L. Lloyd (Bell.), and J. S. Pier (P. & S.)

The term of service of internes at the Kings County Hospital was increased May 15th from eighteen months to two years, and the service, heretofore consisting of three divisions, surgical, medical, and almshouse, will hereafter consist of four, general surgical, special surgical, general medical and special medical. The resident staff is increased from eleven to fourteen, and the following are eligible to positions: E. H. Fiske (L. I. C. H.), Wm. H. Maddren (Johns Hopkins), Hugh A. Rodden (L. I. C. H.), Lloyd L. Smith (U. of P.), Arthur K. Doig (U. of P.), Chas. Falkowsky (U. of P.), Chester F. Duryea (Jeff.), Chas. H. McVean (U. of Buff.), Russell M. Rome (L. I. C. H.), Wm. D. Pursell (U. of P.), Alfred J. Downs (Jeff.), G. W. K. Schenk (P. & S.), Mortimer D. Jones (P. & S.), E. L. A. Kissel (U. of P.), Chas. H. Barlow (U. of P.), M. G. Varian (U. of P.), John Byrne, Jr. (L. I. C. H.), Winfield S. Pugh (Jeff.).

At the Norwegian Hospital, Eugene W. Skelton (L. I. C. H.), and Arthur W. Day (P. & S.), both of Brooklyn, have been appointed internes.

Those successful in securing positions at St. John's Hospital were: John Notman Wilkie (L. I. C. H.) and Arthur H. Longstreet (U. of Vermont).

The men appointed at St. Mary's Hospital were: John F. Meagher (P. & S.), T. V. Costello (Yale), Michael J. Reynolds (P. & S.), and E. H. Fiske (L. I. C. H.).

At the time of the arrival of the transports bringing the sick and wounded soldiers from Cuba to Montauk Point, during the Spanish-American War, the U. S. S. "Jason" was anchored

in Fort Pond Bay, L. I. With the permission of the commanding officer, Dr. John C. MacEvitt volunteered his services to Colonel Forwood, senior medical officer in charge of Camp Wyckoff, who, accepting, detailed him to take charge of two divisions at the Detention Hospital. That these services were appreciated is evident from the following quotation from a recent publication, entitled "New York in the Spanish-American War. Report of the Adjutant-General of the State of New York." The Adjutant-General says:

"In conclusion I have the honor to report the very valuable services of Surgeon MacEvitt, of the U. S. S. "Jason," who went ashore and, during that vessel's stay, performed arduous and valuable services in charge of a ward in the hospital.

"Maj.-Gen. Young, U. S. A., requested me to specially mention Surgeon MacEvitt's services, and request your commendation thereof."

At the invitation of the authorities of the New York Hospital, Dr. James Cole Hancock recently delivered a course of lectures before their training school for nurses.

Dr. Walter Truslow will continue this summer his mountain camp for boys during July and August.

Past Assistant-Surgeon E. S. Bogart was ordered to the "Lancaster," May 11th.

Dr. John Byrne returned the middle of May from a winter's sojourn abroad, and will resume practice at 314 Clinton street.

Dr. George McNaughton announces the removal of his office to 479 Clinton avenue.

Dr. Wm. E. Sullivan has removed to 291 Union street.

Dr. Kenneth F. Junor, who has lately moved from Manhattan, has opened an office in the new South Midwood section, on Flatbush avenue, near Farragut Road.

Dr. James M. Winfield will remove early in the fall to 47 Halsey street.

On April 9th, Dr. Joseph H. Raymond was married to Mrs. Rachel Biddle Cravens, of Philadelphia.

Dr. Richard C. Baker, of 75 Lee avenue, died April 24th.

Professor Ginlio Bizzozero, editor of the *Journal of the Academy of Medicine of Turin*, died April 8th.

Mr. William R. Warner, senior member of the firm of Wm. R. Warner & Co., died April 3d.

The revolver match between the medical and rifle departments of the Second Brigade was won by the surgeons by over seventy points. The scores of the winning team were: Dr. F. J. J. Wood, 127; Dr. Macumber, 132; Dr. Napier, 142, and Dr. de Forest, 136. The scores of the other team were: 140, 136, 99 and 89. The conditions were ten shots at each range, 25, 50 and 75 yards, with military revolver, giving a possible score of 150.

A pair of obstetrical forceps was found on Hamburg avenue, in February. They were wrapped in a paper dated February 3d. The owner may apply to Dr. J. M. Clayland.

The annual scientific meeting of the Alumni Association of Long Island College Hospital was held May 11th. Dr. J. M. Van Cott read a paper on "Autointoxication of Neurotic Origin," which was discussed by Drs. J. H. Musser, of Philadelphia; E. H. Bartley, and E. G. Janeway, of New York. Dr. W. F. Campbell read a paper on "Operative Treatment of Carcinoma of the Breast," which was discussed by Drs. Arpad G. Gerster and Wm. B. Coley, of New York, and W. T. Halsted, of Baltimore.

The eleventh anniversary meeting of the Brooklyn Society for Neurology was held April 25th. Dr. B. Sachs, of New York, was the guest of the evening, and read a paper, entitled "Meningitis and Encephalitis."

The commencement of the Long Island College Hospital took place May 14th. John J. A. O'Reilly was valedictorian.

The meeting of the American Medical Association will be held in St. Paul, June 4-7. A special train has been arranged for, to leave New York June 1st.

The summer meeting of the Associated Physicians of Long Island will be held in Sag Harbor, June 15th. A special train will leave in the morning, but quite a party will go by boat the night previous. A sail around Shelter Island, and drives about Sag Harbor have been arranged for, and the party will be entertained at lunch and at dinner.

A committee of representative men of the profession of this country has been formed to raise subscriptions to the "Rudolph Virchow Fund," to establish scholarships in honor of the eightieth birthday of Professor Virchow. Subscriptions should be sent to the secretary, Dr. A. Jacobi, 110 West Thirty-fourth street, New York.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

AN AMERICAN TEXT-BOOK OF GYNECOLOGY, Medical and Surgical, for Practitioners and Students. Edited by J. M. Baldy, M.D. Second Edition. Revised. Philadelphia: W. B. Saunders & Co., 1898. 718 pp., 38 pl., 4to. Price: Cloth. \$6.00 *net*; sheep or half-morocco, \$7.00 *net*.

The publication of this work in 1893 was in a way a new departure in authorship, wisely conceived and ably executed. It cut loose from the then existing method of considering each disease individually, and in a natural and rational manner gave a new grouping to the topics which go to make up the subject of gynecology. It met with merited recognition, and since that day writers in scientific thought and research have lost conventionality. With the lapse of time knowledge has increased and a new edition of the book becomes necessary. Under the masterly skill of the editor—assisted by a corps of brilliant collaborators of this edition, whose names add lustre to the art of American gynecology—this new edition comes to the profession replete with scientific facts and rich in the completeness of detail.

The technique it inculcates is from a practical point the very essence of its excellence. No doubt it will continue to maintain its position as a representative treatise on gynecology.

THE CARE OF THE BABY, a Manual for Mothers and Nurses. By J. P. Crozier Griffiths, M.D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania, etc., etc. Second edition. Revised. Published by W. B. Saunders & Co., Philadelphia. Price, \$1.50.

This book is a valuable one, and though written for mothers and nurses, may well form a part of the physician's reference library. We have read every word of it. It treats in plain and simple language of the hygiene of the pregnant woman, of what constitutes a healthy baby, and points out what hygienic measures are necessary for a healthy mind and body. The chapters on "nurses" and "the sick baby" are excellent. The "appendix," with its recipes for foods and the prescriptions which it contains, is of service to the doctor.

We call attention especially to the advice against using too powerful breast pumps, the too frequent reliance upon dentition as a cause of sickness, the infrequent examination of the urine. We wish that heavy type had been used where mothers and nurses were told that under no circumstances were they to do so and so.

It is a matter of regret that the use of the clinical thermometer is advocated. Parents become so easily alarmed. And it does not seem wise to even hint at the use of aloin, or corrosive sublimate solution, or antipyrin. But it should be stated that very frequently the author urges moth-

ers and nurses to rely upon the family physician in severe sickness and for the use of medicines other than simple ones. JEROME WALKER.

A TREATISE ON MENTAL DISEASES. By Prof. H. J. Berkley, of Johns Hopkins University. Pages 601, with 57 figures and numerous plates. New York: D. Appleton & Co., 1900.

In typography, paper, illustrations and general make-up this is one of the most beautiful of medical works. And the text is clearly written. All this is what we are accustomed to expect from a Johns Hopkins authority. There remains to be considered the scientific material of the book and its sufficiency. A considerable number of errors or slips can be laid to the natural crudity of a new work; others are mostly where a slurring over is customary.

In Fig. 1, there is a mistake in naming the precommunicant artery; the real precommunicant is made unduly large; the precerebrals loose unduly in size at the precommunicant; the postcommunicant is made to start from the medicerebral, though in a majority of cases it has been found to start from the carotid itself, and the basilar is made smaller in size than either of its constituent vertebrals (it should be simply smaller than the sum of the two).

The statement on p. 5 that in blocking of either of the three main branches from the cerebral carotid, "The nutrient supply is entirely shut off from that territory," is not strictly correct. These are not quite true terminal arteries, like the perforatings, as there are sufficient fine anastomoses in the periphery of each field to somewhat reduce the size of the patch of softening that follows closure of the main vessel.

He says, p. 65: "There are no statistics, to my knowledge, on the frequency of arterial abnormalities in the insane in comparison with the sane." On this point he might consult the paper of St. John Bullen, based on the examination of 1,565 brains from the insane, in the *Jrnl. of Mental Science* for January, 1890.

The increasing importance of simple and irregular dementias of syphilitic origin is fairly recognized. In the treatment of late brain-syphilis he very properly urges the use of some mercury. Though he devotes some special attention to specific diseases of the brain-arteries and cites the literature, he overlooks the fine work of Abramow (*Ziegler's Beitræge*, 1899). The two harmonize fairly well, except that the latter finds the changes in the intima precede those in the adventitia—and older teachings prejudice us in favor of that view.

Uric acid seems to be considered only under the heading Gout, and to this less than a page is given. The disputed occasional relation of uric acid to melancholia is not mentioned, nor are the melancholic or hypochondriacal states that seem to represent gouty metastases.

He devotes thirty-three pages to the "Alcoholic Insanities." And claims, page 277, that "As high as 8 or 10 per cent. of alcoholics have eventually epileptic seizures, the inception being ordinarily immediately after a hard debauch." This form of convulsions is too little recognized, but his percentage seems high. "The prognosis is unfavorable even with complete withdrawal of the stimulant, and repeated seizures are liable to bring about a speedily fatal issue, an intense congestion with general

edema of the brain being found at the autopsy." This is occasionally all true, as in a recent case at the County Hospital, but the statement sounds too sweeping, since most attacks of alcoholic epilepsy pass off without any such outcome.

The book is to an unusual extent a treatise on the somatic basis of insanity—excellent for the student who wishes to prepare himself for further work in psychiatry. It is more than ever important in this field to start from the safe foundation of what is established, and the volume is only too brief. An interesting addendum of four pages is devoted to the influence of the tropics.

The index is arranged on a somewhat novel plan that the reviewer finds unsuited to its proper purpose—in fact, a kind of elaborated table of contents.

Taken altogether, this work is, as far as it goes, a splendid guide, and bears ample marks of good observation and judgment in its writer.

W. B.

TEXT-BOOK OF HISTOLOGY, Including Microscopic Technic. By A. A. Böhm, M.D., and M. von Davidoff, M.D. Authorized translation from second revised German edition by Herbert H. Cushing, M.D. Edited, with extensive additions to both text and illustrations, by G. Carl Huber, M.D. W. B. Saunders & Co., Philadelphia, 1900.

The authors, together with the editor, may well be proud of their accomplishment, for the volume is second to none as a text-book for the student, and reference book for the general practitioner. Upon reviewing this book, one is immediately impressed with two important factors, viz.: the extreme clearness of the text, especially valuable to the student; and the extensive and valuable technique appended to each chapter. The volume begins by describing the microscope and its accessories. Under this latter head are included some very helpful hints and formulæ concerning the fixing and hardening of tissues, with directions and formulæ of a few new and much needed stains. The method of dealing with the various tissues is divided into General Histology, including the cell, the epithelial tissues, connective, muscular, and nervous tissues; and Special Histology, including the blood and lymph, organs and the special senses.

The paragraph on mitosis is most admirably illustrated, both diagrammatically and from drawings of eggs of the *Coregonus albus*. The method of dealing with the process of fertilization is concise and instructive to every practitioner. The chapter on the development of bone is by far the best published, including comprehensive illustrations. The nervous tissues are given special attention, and much is found that is truly new, especially concerning peripheral nerve terminations. The author gives the reader a very clear idea of the neurone and its make-up.

The section on blood is by far more exhaustive than in most text-books on histology. The vascular system has received the same amount of attention that marks the other chapters; a valuable drawing is here shown, giving the difference between a precapillary artery and a precapillary vein; this is a great help to the student to understand the action of the vaso-motor system.

The drawings of the kidney are the least attractive, but the text is

good. The remainder of the male and female genito-urinary organs are complete, including an excellent paragraph on spermatogenesis.

The central nervous system terminates the Special Histology, save for the organs of special senses. Some very instructive methods of technique accompany this chapter, together with an article on the "General Survey of the Relations of the Neurones to One Another in the Central Nervous System." This article speaks for itself and is up-to-date.

The authors have endeavored throughout the entire book to hold closely to one nomenclature, and hence, do not confuse the student or reader with several names for any one given element, which is very commendable.

RAYMOND CLARK.

ESSENTIALS OF HISTOLOGY. By Louis Leroy, B.S., M.D. W. B. Saunders & Co., Philadelphia, 1900.

This book, like many other such publications which flood the market, is not only misleading but detrimental to the student and practitioner. The drawings are very rudimentary, and are far from the actual state of affairs. The nomenclature used is very rambling, and hence, confusing for one seeking knowledge in this science.

RAYMOND CLARK.

INTRODUCTION TO THE STUDY OF MEDICINE. By G. H. Roger, Professor Extraordinary in the Faculty of Medicine of Paris, etc. Authorized translation by M. S. Gabriel, M.D. With additions by the author. New York: D. Appleton & Co., 1901, vii, 545 pp. 8vo. Price: Cloth, \$5.00; sheep, \$6.00.

This book is a reproduction of the course of lectures delivered by the author at the University of Paris, having as their object to lessen as much as possible the difficulties met with in the study of the medical sciences. It is a masterful résumé of recent medical advancement. Two hundred pages are devoted to the consideration of the examination of the sick. They emphasize the importance of clinical procedures, a great service in these days of so much dependence on laboratory researches.

A SYSTEM OF PRACTICAL THERAPEUTICS. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc. Second edition, revised and largely rewritten. Vol. I. General Therapeutic Considerations, Prescription-Writing, Remedial Measures Other Than Drugs, Preventive Medicine, Diathetic Diseases and Diseases of Nutrition. With illustrations. Philadelphia and New York: Lea Bros. & Co., 1901. 856 pp., 8vo.

We must express our amazement at this latest evidence of the author's active work. It is difficult to imagine how he finds the time to put on record so much information, and more so to figure where the gleanings can be forced into the working day in addition. That it is all done and well done, this and many other productions stand witness.

KING'S AMERICAN DISPENSATORY. By Harvey Wickes Felton, M.D., Adjunct Professor of Chemistry, Pharmacy, and Toxicology, and Pro-

fessor of Anatomy in the Eclectic Medical Institute, Cincinnati, O., etc., etc., and John Uri Lloyd, Phr.M., Ph.D., Professor of Chemistry, Pharmacy, and Toxicology, in the Eclectic Medical Institute, Cincinnati, O., etc., etc. Entirely rewritten and enlarged. Eighteenth edition. Third revision. In Two volumes. Vol. 2, G.-Z. Cincinnati: The Ohio Valley Company, 1900. viii, 905-2172, lvii pp. roy. 8vo. Price, per vol.: Cloth, \$4.50; sheep, \$5.00.

It would be well for every practitioner to purchase this book, study it and refer to its pages every day.

A TEXT-BOOK OF PHARMACOLOGY AND THERAPEUTICS, or the Action of Drugs in Health and Disease. By Arthur R. Cushny, M.A., M.D., Aberd., Professor of Materia Medica and Therapeutics in the University of Michigan, etc. Second edition. Revised and enlarged. Illustrated with forty-seven engravings. Philadelphia and New York: Lea Bros. & Co., 1901. 732 pp., 8vo. Price: Cloth, \$3.75, *net*.

We are pleased to receive the second edition of so valuable a work. The reasons for drug actions are bravely grappled with by the author. We need just such books on every subject.

DISEASES OF THE HEART: Their Diagnosis and Treatment. By Albert Abrams, A.M., M.D., F.R.M.S. Chicago: G. P. Engelhard & Co., 1900. pp. 170, 12°, Buckram, \$1.00 *net*.

This is a small, handy volume. It is inviting in form, arrangement and method. It will be of great service to the diagnostician.

URINARY DIAGNOSIS AND TREATMENT. By John W. Wainwright, M.D. Chicago: G. P. Engelhard & Co., 1900. 134, iv. pp., 16 pl. 12mo. Buckram, \$1.00, *net*.

A companion to the former volume and quite as attractive and useful, this book will be well received. The statement in the preface is not exactly correct that "at the present time no work embodies the simplest methods of chemical and microscopical examinations with the latest deductions and theories concerning the general routine treatment of the conditions found."

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. 4, December, 1900. Diseases of Digestive Tract and Allied Organs, the Liver, Pancreas, and Peritoneum, Genito-Urinary Diseases and Syphilis, Fractures, Dislocations, Amputations, Surgery of the Extremities and Orthopedics, Diseases of the Kidneys, Physiology, Hygiene, Practical Therapeutic Referendum. Philadelphia and New York: Lea Bros. & Co., 1900. vi, 15-428 pp., 8vo. Price: Cloth, \$2.50 *net*.

This work improves with acquaintance. Attractive on first introduction, it has become already almost a necessity. The weekly journals

pile up on a busy practitioner's desk at this season of the year, and perforce are neglected. These volumes with their judicious selections from the many articles then lost come as a relief and remedy to be relied on.

TRANSACTIONS OF THE NEW HAMPSHIRE MEDICAL SOCIETY, at the One Hundred and Ninth Anniversary, held at Concord, March 31 and June 1, 1900.

We look over this volume with pleasure. It is impossible to be brought into close contact with the work of a busy practitioner and not profit by it. The articles here found record such work, and are a valuable addition to our library.

THE PRACTICE OF MEDICINE. A Text-Book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. Second edition. Thoroughly revised and in parts rewritten. With 127 illustrations, including colored plates. By James Tyson, M.D., Professor of Medicine in the University of Pennsylvania and Physician to the Hospital of the University, etc., etc. Philadelphia: P. Blakiston's Son & Co., 1900. xvii, 17-1222 pp., 3 pl., 8vo. Price: Cloth, \$5.50 *net*.

We have commended this work on a former occasion. We desire to repeat all we have said. It well illustrates one of the penalties for writing a text-book. The author of such involves himself in that difficult task of revision. We are indebted to him for his labors well performed.

A PRACTICAL TREATISE OF MATERIA MEDICA AND THERAPEUTICS, with Special Reference to the Clinical Application of Drugs. By John V. Shoemaker, M.D., LL.D., Professor of Materia Medica, Pharmacology, Therapeutics and Clinical Medicine, and Clinical Professor of Diseases of the Skin in the Medico-Chirurgical College of Philadelphia. Fifth edition. Thoroughly revised. 6¼x9½ inches. Pages vii-770. Extra cloth, \$4.00, *net*; sheep, \$4.75, *net*. F. A. Davis Company, publishers, 1914-16 Cherry street, Philadelphia.

To one desiring information as to the latest additions to knowledge in this department this work will be welcome. It is too well known to require other comment than it maintains its well-earned reputation.

TRANSACTIONS OF THE STATE MEDICAL SOCIETY OF WISCONSIN. For the Year 1900. Vol. 34. Constitution and By-Laws and List of Members. Madison: M. J. Cantwell, 1900. 480 pp., 8vo. Cloth.

Our western friends generously place a paper entitled "Cardiac Pathology," by Alfred Stengel, M.D., of Philadelphia, at the beginning of the book. That act is a fair index of their broad spirit. It is worthy of emulation. To bring the brethren together and give their work an equal and courteous bearing is a society's chief end.

URIC ACID AS A FACTOR IN THE CAUSATION OF DISEASE. A Contribution to the Pathology of High Blood Pressure, Headache, Epilepsy, Mental Diseases, Paroxysmal Hemoglobin and Anemia, Bright's Disease, Diabetes, Gout, Rheumatism, and Other Disorders. Fifth edition. By

Alexander Haig, M.A., M.D. Oxon., F.R.C.P., Physician to the Metropolitan Hospital, and the Royal Hospital for Children and Women, etc. Philadelphia: P. Blakiston's Son & Co., 1900. xvi, 846 pp., 8vo. Price: Cloth, \$3.00 *net*.

The author is as emphatic as ever in placing the brunt of physical ills on the uric acid question. His lucidity is not more apparent here than before, and prolix is a fair criticism of the book. We hope that he will issue a compend at some future time. It would be a pleasure to have the information this book contains in modern, or as he would say, American form.

A MANUAL OF PHYSIOLOGY WITH PRACTICAL EXERCISES. By G. N. Stewart, M.A., D.Sc., M.D. Edin. D.H.P. Camb., Professor of Physiology in the Western Reserve University, Cleveland; Formerly George Henry Lewes Student; Examiner in Physiology in the University of Aberdeen, etc., with three hundred and thirty-six illustrations and five colored plates. Fourth edition. Philadelphia: W. B. Saunders & Co., 1900. 8vo, 849 pp.

It has been deemed best to review this book as one would a new work, rather than to merely compare the present—fourth—with former editions. The arrangement of the chapters is a usual one—beginning with the physiology of blood, and ending with that of reproduction. A characteristic feature of the book, and one that is highly commendable, is the insertion of supplementary chapters containing directions for the performance of laboratory and class-room experiments. The experiments have been well chosen, and the directions are sufficiently explicit; but the cuts in these “practical exercises” are very crude—intentionally so it may be—though not the more excusable on that account. In the systematic portions of the work, too, many of the illustrations are quite defective—a matter of no small moment in a text-book.

The introduction is very brief, being made up chiefly of very general statements concerning the chemic composition, anatomic structure, and “functions” of living matter. At its head is a quotation from John Hunter, which indicates the author's belief in a special force underlying and causal of the phenomena characteristic of living things. Such declaration of belief seems out of place in a scientific text-book. And even were it looked upon as a generalization it should be placed not at the very beginning, but rather at the end of the work. It should certainly not be laid down as hard and fast until the involved phenomena had been discussed, and *some* supportive evidence offered. Placed as it is, it is liable to incite prejudice either for or against the conception for which it stands, according to the psychic poise and previous training of the individual student. The mode of presentation of the several portions of the subject differs in the different chapters. In some (*e.g.*, chapters I. and II.) the opening statements are of a general character, and though clearly made and intelligible enough to any one somewhat familiar with the subject, their full meaning is not grasped by first-year medical students—for whom they are intended. These statements are really generalizations which have been arrived at only after considerable experience and thought, and it would seem better to reserve them for the latter part of the respective chapters, *i.e.*, until the

facts and minor inferences on which they depend shall have become familiar to the student. Likewise the relative clearness of statement differs in different parts of the book, and even in different parts of the same chapter. From the reading of certain portions, students seem to have little difficulty in gaining clear conceptions, but there are other portions with which they have considerable difficulty, aside from the mere complexity of the subject, or particular points. The amount of matter in the book is quite sufficient for its intended use, as a text-book for students of medicine in this country; and though not quite an ideal text-book, it is better than many heretofore used as such. Of the two portions of the book, viz., the systematic and the practical, the latter seems decidedly the better done; for, so far as it goes, it is, taken as a whole, a good guide for students undertaking such work. In the systematic portions there are indications here and there of over-condensation.

JOHN C. CARDWELL.

Feb. 4, 1901.

OBSTETRIC CLINIC. By Denslow Lewis, Ph.C., M.D., Professor of Gynecology in the Chicago Polyclinic, etc. A Series of Clinical Lectures on Practical Obstetrics, delivered to students and practitioners in Cook County Hospital, Chicago. Together with remarks on Criminal Abortion, Infanticide, Illegitimacy, the Restriction of Venereal Diseases, the Regulation of Prostitution and other medico-sociologic subjects. Chicago: E. H. Colegrove, 1900. viii, 652 pp., 2 pl., 8vo. Price: Cloth, \$3.00.

The distinctive feature of modern medical teaching is the predominance of practical instruction. Clinical demonstration and the use of the phantom have revolutionized the methods of imparting medical knowledge. The purely didactic lecture has given place in great measure to object teaching. Dr. Lewis' lectures afford a striking example of the best type of the demonstrative educational method. The topics presented are mainly obstetric. The field of this subject is fairly well covered by actual clinical demonstrations and discussions, and is supplemented by operations on the phantom when clinical material was not at hand.

While some of the views and methods taught are not those generally held and practised the lectures will be found instructive in matter as well as in manner.

CHARLES JEWETT.

A TEXT BOOK ON PRACTICAL OBSTETRICS. By Egbert H. Grandin, M.D. With the collaboration of George W. Jarman, M.D. Third edition, revised and enlarged. Philadelphia, New York, Chicago: F. A. Davis Co., 1900, xiv, 511 pp., 52 pl., 8vo. Cloth, \$4.00 net; sheep, \$4.75 net.

The preceding editions of this text book we have reviewed at length in the columns of the JOURNAL, and we have had only words of praise for them. It is one of the best of recent obstetric manuals. The present edition has been enlarged by the addition of a chapter on Anatomy and Embryology, and has been otherwise improved. For the revised work we bespeak a renewed popularity and success.

OBSTETRIC AND GYNECOLOGIC NURSING. By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College, etc. Illus-

trated. Philadelphia and London: W. B. Saunders & Co., 1901. 402 pp., 18 pl., 8vo. Cloth, \$1.75 net.

The obstetric section of this excellent work treats of the physiology of gestation and of the care of the patient during pregnancy, labor and the puerperal period. The various obstetric accidents and emergencies are also dealt with, and the nurse's duties in the minor and major operative procedures are clearly defined. The care of the newborn child, both in health and disease, is considered in detail.

In the gynecologic division of the work the principal topics are the examination of patients, posture of the patient, local treatment, donches, massage, gynecologic operations and the post-operative care of patients. An appendix includes a sick room dietary and instructions for the preparation of surgical supplies.

So complete a handbook from an authority so eminent in his special lines is a welcome addition to the list of nurse's manuals.

CHARLES JEWETT.

PHYSICAL DIAGNOSIS IN OBSTETRICS. A Guide in Antepartum, Partum and Postpartum Examinations, for the Use of Physicians and Undergraduates. By Edward A. Ayers, M.D. With illustrations. New York: E. B. Treat & Co., 241-243 West 23rd street. 1901. viii, 283 pp., 1 ch., 8vo. Cloth, \$2.00.

Dr. Ayers has elaborated the most complete obstetric history chart that has yet been published. So full is it in detail that even the tyro who follows it faithfully cannot fail of recording every particular of value in the history. This chart fills five pages in the above named volume. The order of topics in the text follows that observed in the chart. It deals with methods of examination and of observation necessary to a complete and exact knowledge of the obstetric case throughout pregnancy, labor and the post partal period. Treatment is also considered to some extent.

The book occupies a field which has never been so well filled before, and a most important one it is. We know of nothing in the literature of the subject better calculated to improve the standard of obstetric practice and teaching than just such works as this of Dr. Ayres. No teacher or practitioner of obstetrics can read it without profit.

CHARLES JEWETT.

A PRACTICAL TREATISE ON NERVOUS EXHAUSTION (Neurasthenia), Its Symptoms, Nature, Sequences, Treatment. By George M. Beard, A.M., M.D. Edited, with notes and additions, by A. D. Rockwell, A.M., M.D. Fourth edition. Enlarged. New York: E. B. Treat & Co., 1901. 274 pp., 8vo. Price: Cloth, \$2.00 net.

It is very satisfactory to see that there is still sufficient demand for the old familiar classic of Beard to warrant another edition. The editor has, perhaps, done wisely to make but little alteration and limited enlargement. The major part agrees page for page with the third (1894) issue. The main thing that he seeks to change is to separate out the lithemic cases as a distinct class. This represents in one regard what will evidently in time be applied to the whole neurasthenic group—a complete separation into more or less distinct disorders. In fact, even now it might be carried much farther than appears, and much that we find here is by late writers placed elsewhere.

A distinct value of this work is its calling attention to symptoms, teaching thus the art of careful observation. But the presence of any one of these does not by any means mean neurasthenia; and in other cases it is that combined with something else.

The enlarged final chapter is devoted to advocacy of the static current in cases of this class. On page 44 is evidently a typo—"Like other nervous systems," meaning symptoms.

W. B.

GENITO-URINARY AND VENEREAL DISEASES. By Robert W. Taylor. Lea Bros. 1900. 697 pages.

The great clinical experience and extensive reading of Dr. Taylor constitute anything from his pen a welcome contribution to the literature of genito-urinary diseases, and in the present volume our expectations are not disappointed.

Although only five years have elapsed since the appearance of a former edition of this work, the present book contains much that is new and some topics which were not included in the older volume.

The edition of 1895 treated more particularly of those diseases which are distinctly venereal in origin, but the present work includes the non-venereal genito-urinary affections, Pyelitis, Enlarged Prostate and Diseases of the Bladder, such as Calculus, Tumors, etc. These affections are essentially a part of the specialty of genito-urinary diseases and should be included in any discussion of the general subject.

In this connection attention may be called to ten plates of pathological subjects, both photographs and wood cuts, which were made under Dr. Taylor's personal supervision, and add clearness to the descriptions in the text.

Throughout the entire book the reader observes the lucid expression of views and the sound conservatism of opinion so eminently characteristic of all the writings of its author.

H. H. MORTON.

STUDENTS' MANUAL OF VENEREAL DISEASES. Seventh edition, pages 205.

F. R. Sturgis & Follen Cabot. P. Blakiston's Son & Co.

The well deserved popularity of this little book among students is shown by the numerous editions through which it has passed.

The present volume has been considerably enlarged and the material contained has been brought up to date by the authors.

The chapter on Chronic Gonorrhea, by Dr. Cabot, is particularly worthy of the student's attention, and the author emphasizes the importance of making a diagnosis of the particular structures in the urethra or its adnexa which are affected.

It is by far too common for the practitioner to dismiss such patients with a prescription for an injection and the remark that "gleet" is a trifling matter.

The serious error of such advice is subsequently proven if the man marries, by the gonorrheal infection of his wife and the subsequent train of consequences, finally ending in a curettage or often a laparotomy and the removal of pus infected tubes and ovaries.

These facts cannot be too often or too strongly impressed upon the mind of the student.

The chapters on Syphilis and Chancroid are equally practical, and the facts are presented with clearness and force.

H. H. MORTON.

PRACTICAL GYNECOLOGY. A Comprehensive Text-Book for Students and Physicians. By E. E. Montgomery, M.D., Professor of Gynecology, Jefferson Medical College, etc., etc., with 527 illustrations. pp. 819. Philadelphia, P. Blakiston's Son & Co., 1012 Walnut street. 1900.

The author in his preface offers no apology for writing a new treatise on gynecology. A perusal of the book must convince the discriminating reader that no such apology is required. The work in its entirety is a terse and comprehensive statement of the author's views—stated in such terms that no one is left in doubt as to his meaning. From inception to close the interest never flags.

The author has a clear conception of his subject: this, with his manner of treatment, introduces the reader to questions otherwise intricate in such a manner as to make them easily comprehended. His introduction, together with his comments on diagnosis and examination of the patient, are delightfully clear and instructive. Therapeutics local and systematic are clearly and intelligently discussed. Following this the anatomy and physiology of the female generative organs have due consideration, following which malformations and their appropriate treatment are presented with great perspicuity. More than one hundred pages are devoted to inflammation, showing the soundness of teaching and the grasp of the author of this highly important subject. Equal space is then devoted to deviation of the pelvic organs, and nowhere in the author's task has his appreciation of correct principles and their correct application been better exemplified and maintained.

The discussion of genital and ovarian tumors, together with due consideration of ectopic gestation and genito-urinary hemorrhage, completes the well rounded volume. The sustained interest which dominates the entire book is suggestive of the qualities of the author.

In point of scientific excellence it compares favorably with any which have preceded it, and in soundness of teaching it has no superiors.

The sentiments of the author as to the danger of unobservable ligatures are in keeping with the most advanced views of the surgical world, and are worthy of universal adoption. Not least in interest are the 500 or more illustrations, which are artistic and accurate, and simplify technical procedure as no didactic statements can do.

The world of gynecology is the richer for Dr. Montgomery's teaching, and another laurel is added to the fame of American authorship.

WALTER B. CHASE.

SYSTEM (A) OF PRACTICAL THERAPEUTICS. Edited by Hobart Amory Hare, M.D. Second Edition. Revised and Largely Rewritten. Vol. 2. Fevers—Diseases of the Respiratory and Circulatory Systems—Diseases of the Digestive System and Kidneys—Nervous Diseases and Diseases of the Skin. Philadelphia and New York, Lea Bros. & Co., 1901. 926 pp., 6 pl. 8vo. Price: Cloth, \$5.00.

We are pleased to again commend this useful work. We would call

especial attention to the chapters on typhoid fever, smallpox, the acute eruptive fevers of children, cardiac diseases, locomotor ataxia, and acute infantile spinal paralysis. The book is up-to-date in every particular, and while dealing principally with therapeutics emphasizes points in diagnosis in a most practical way.

THE AMERICAN YEAR-BOOK OF MEDICINE AND SURGERY [for 1901], Being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs, and Text-Books of the Leading American and Foreign Authors and Investigators, Collected and Arranged with Critical Editorial Comments, under the General Editorial Charge of George M. Gould, M.D. Philadelphia, W. B. Saunders & Co., 1901. In Two Volumes, 8vo. Vol. 1, Medicine; Vol. 2, Surgery. Price per Volume: Cloth, \$3.00 *net*; half morocco, \$3.75 *net*.

We cannot speak too highly of this valuable work. It is a succinct and fairly complete review of the year's literature of medicine and surgery. Some of the editorial comments are interesting. Such will be found on pages 184-185, 295 and others. By some oversight no mention is made of important work in the department of chemistry by one of our members.

INTERNATIONAL CLINICS. A Quarterly of Clinical Lectures and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and Other Topics of Interest to Students and Practitioners. By Leading Members of the Medical Profession Throughout the World. Edited by Henry W. Cattell, A.M., M.D. Vol. 4. Tenth Series, 1901. Philadelphia, J. B. Lippincott Co., 1901. VII., 312 pp., 1 col. pl., 11. 8vo. Price: Cloth, \$2.00 *net* per volume.

Every article of this book deserves careful reading. There is no padding to be found here. "The United States Pharmacopœia" is the subject of the first lecture: its past and present status is given and a vigorous plea made for its legal control. Dr. H. C. Wood is the author, and the facts he states ought to be familiar to every medical man. "Massage in Raynaud's Disease" is the title of a paper by Dr. Douglas Graham. One conclusion he arrives at is that the vitality of the tissues can not only be maintained and improved by means of massage, but even when destruction has begun it may be entirely recovered from. This statement will invite careful perusal of the arguments adduced.

The use of the fixed catheter in the treatment of urinary infection and urethral hemorrhage is described in an exhaustive lecture by Felix Guyon, M.D. He maintains that those to whom is confided the treatment of prostatic patients in serious attacks of urinary infection, will not find drawback to its use.

Progressive muscular atrophy is graphically described by Jean B. Charcot, M.D., in a clinical lecture.

These are merely suggestions of the good things this book contains.

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

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VOL. XV, No. 7.
WHOLE No. 163. }

BROOKLYN, N. Y., JULY, 1901.

{Single copies 25 cents
{\$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

THE APPLICATION OF WATER IN CHRONIC DISEASES.

BY SIMON BARUCH, M.D., NEW YORK.

Read before the Section of Materia Medica, Therapeutics, and Pharmacology of the Medical Society of the County of Kings.

That cold and heat are irritants, which stimulate when mild and depress when intense, is a trite physiological fact. The stimulating effect of water, ten or more degrees below the body temperature, upon the cutaneous sensory terminals is transmitted to the central nervous and sympathetic systems. The inspiration is deepened by reflex action through the vagus, the heart action is improved through increased resistance of the contracted arterioles, which are afterwards dilated in tonic fashion, showing a reaction denoting the passage of larger quantities of blood through them. An increase of hemoglobin and blood cells in the cutaneous blood has been often demonstrated after cold procedures; more blood cells are therefore driven through the lungs also. The exposure of a larger number of blood cells to the air enhances oxygenation materially, and renders cold procedures, when followed by reaction, the best hemoglobin producers. When these cold procedures—be they ablutions, drip sheets, packs or douches (the

latter are the most useful)—are repeated daily or oftener, the skin receives a neuro-vascular training, the refreshing and invigorating effect of which is felt throughout the entire system. Even in health the man who indulges in the morning tub testifies by the ruddy appearance of his face, his pink nails and general vigor to the fact that he has put his cutaneous vessels and nerves through a course of training which may not be inaptly compared to that which the athlete obtains for his muscles from dumbbell or other exercises.

My confidence in this simple agent has grown with years of observation and study, so that now I rely upon it in conjunction with other physiological agents, as rest, exercise, change of air, ventilation, diet, massage, and gymnastic movements, passive and resisting.

The following data may serve to illustrate the above briefly-stated propositions:

Phthisis.—Of all chronic maladies, this is probably the most destructive. The method now universally adopted, and which I emphasized ten years ago (Transactions N. Y. State Med. Society), for the management of these forlorn cases combines the open air, dietetic and water treatment. This plan was devised by H. Brehmer, who dwells with strong emphasis upon the value of hydrotherapy in phthisis, and in accordance with his suggestions and his example in the great sanatorium constructed by him at Goerbersdorf, every institute of note follows his advice. I have personally inspected many of these, among them the model institution at Ruppertshain, and Deltweiler's Sanatorium at Falkenstein; also, Roempler's and Brehmer's at Goerbersdorf, and found a douche apparatus in each. A recent excellent and complete article by Dr. J. H. Kellogg (*Med. News*, November, 1900) epitomizes the use of water in this disease, as follows: "It is my firm belief that the general adoption of hydriatic measures in the treatment of pulmonary tuberculosis by the profession at large, and especially the application of these measures to the disease in its incipient stages, would result in saving at least nine-tenths of the sufferers from this disease from the untimely death to which almost every one is doomed under ordinary medical management."

The opinion of this able and many-sided physician is fully endorsed by that most successful prize essayist in pulmonary tuberculosis, Dr. Knopf, who opens an able chapter on hydrotherapeutics of this disease with the statement, "After aerotherapy,

hydrotherapy comes next in importance in the treatment of pulmonary tuberculosis." These opinions I have amply verified. Even when patients have found it impossible to leave their home for a more favorable clime, I have seen, in private and hospital practice in New York City, results in preventing the development and checking the advance of this usually progressive malady, which have convinced me of the substantial value of judicious hydrotherapy despite the prejudice against cold water. These results are directly traceable to the powerful influence of the external application of water, with friction, at a temperature varying from five to twenty degrees below that of the patient. The gradual reduction of the water temperature elicits a neurovascular training which awakens appetite, nutrition, hematosis and constructive metabolism in such manner that the blood is rendered capable of resisting the development and existence of the bacillus tuberculosis, by enhancing his vitality. Clinical examples abound. Listen to one brief history, as a demonstration of a recovery which has endured.

Mr. S., æt. twenty-six, merchant living in Kentucky, was visiting some friends at Long Branch, N. J., in the summer of 1892. He consulted me on the 29th day of July for general malaise. He was pale, weak, had been losing flesh and coughing several months. Anorexia pronounced. Temperature, 101; pulse, 120. Dull note over left supraclavicular space, respiratory murmur harsh, expiration prolonged. He was put to bed for a few days until the temperature showed 99°. He was then sent to an institution in the city for water treatment. He now weighed 106 pounds; the sputum showed tubercle bacilli. A hot air bath, short of perspiration, to improve peripheral circulation and enhance reaction was ordered, followed by the circular douche of 95°, gradually reduced to 80° F., during forty minutes, under ten pounds pressure, gradually increased to twenty pounds, in order to avoid so-called shock. This was followed by the fan douche, at fifteen pounds' pressure, gradually raised to thirty pounds, during four seconds at 70° F. Under this treatment he felt better. An eminent consultant, however, having been called by his friends, advised his immediate removal to Asheville, N. C., and gave it as his opinion that the patient should not return to the city at all, as he could not live in this climate. Regarding his chances as far better under systematic hydrotherapy than under the climatic change recommended, I counselled him to remain in the city, and the result happily justified

the advice. One month after beginning treatment he was able to take water at 70°, with brief sprays even at 40°. He had gained 7½ pounds, appetite was excellent, cough still troublesome, because of tubercular laryngitis. The spray temperature was diminished, so that on the 19th of September it was only 64°. Bacilli were still present. On January 9, 1893, Dr. Freudenthal, who treated his laryngitis, writes: "Patient looks and feels much better; has gained ten pounds. Ulcerations have healed under lactic acid and 20 per cent. menthol. The improvement in the case is remarkable."

On the 21st of January, six months after beginning treatment, he had gained sixteen pounds, weighing five pounds more than in health, and Dr. Van Giessen reported that no tubercle bacilli could be found.

The patient is still living in this city, and with the exception of a laryngeal irritation, is well and able to pursue his avocation.

Institution treatment is not necessarily required. Every home has sufficient facilities for the application of some form of air and water treatment. If the principles governing the latter are understood and the unfounded fear of shock is thus removed, very cold water may be used with great advantage in building up the vital resistance.

Another trying, if less fatal, disease, which offers a fruitful field for hydrotherapy, is Neurasthenia. Mild forms yield readily to removal from unfavorable environment, improvement of diet, habits, exercise, rest, etc. In the more obstinate forms, when all these have been tried without result, the addition of some form of hydrotherapy almost invariably changes the entire aspect of the case. In this age of restive striving after wealth and fame and social distinction neurasthenia has become one of the most common maladies, so that every physician in active practice has one or more of these unsatisfactory cases almost always on his list. It has become the fashion to accept the various novel combinations of so-called nervines, nerve tonics, tissue builders, hypnotics and analgesics which the busy chemist evolves for the enterprising manufacturer, who in turn sends his polite purveyors and agents to the doctor's office to solicit their application through gratuitous samples. I see many cases that have gone the rounds of these modern nerve restorers in vain. I see few cases in which any kind of methodical hydrotherapy has been applied. Some may have received directions to sponge with cold water or to plunge into a cold tub, without any definite prescription of tem-

perature or duration, so that when water is prescribed by myself they raise the objection that they cannot bear cold water—it always disagrees, shocks them, weakens them, etc.—and yet of all remedial agents that are advised in the best works and essays on neurasthenia, the methodical application of water has been given the palm by men like Eulenberg, Jolly, Strümpell, Krafft-Ebing, Erb; and in our country, by F. Peterson, of Columbia, and Putnam, of Harvard University.

The neglect of hydrotherapy by the average practitioner, and even by many neurologists, may account for the sad fact that we hear of so many neurasthenics wandering from one doctor's office to another, and sooner or later becoming the prey of charlatans and Christian Scientists. These patients present every phase of depreciated vascular and nerve conditions. Some of them present the appearance of health, many look wan and worn from loss of appetite and sleep, digestion is impaired, introspection renders them and all around them miserable. Some have been benefited by treatment, rest cure, change of air and scene, but on their return to an unfavorable environment all the old symptoms gradually but surely return. Again they totter on the brink of invalidism; some give up in despair, believing their reason threatened; others insist that their memory is impaired; others become the prey of morbid fancies, agoraphobia, nosophobia, insomnia-phobia (if I may coin a word). They become the despair of family, friends and physician.

What prospect is there for such cases? I may say from actual observation that in a large proportion, if there be no organic basis nor positive heredity predisposition to insanity, the result of a methodical course of hydrotherapy in connection with properly adjusted diet and environment will prove a revelation. The most useful procedures are the dry pack, which consist of the snug wrapping of the patient in heavy woollen blankets for about an hour, so as to accumulate heat. Successive parts of the trunk are then uncovered, and treated to a rapid and brisk rubbing, with a bath glove or wash rag saturated and squeezed out of water at 85°. After drying and good friction the patient is sent into the air for gentle exercise. Every day the pack and wet rubbing are repeated, the water temperature being reduced two or more degrees daily, until 60° F. are reached. The patient's reactive capacity having been trained by these daily neurovascular gymnastics, he is subjected to more decided hydriatic procedures. Standing in water at 100° in a warm bathroom, the patient may

be subjected to affusions from a foot tub containing water at 80° , which may be daily reduced two or three degrees until a temperature of 60° is reached, water is dipped with a long-handled basin or large tin dipper, and thrown with force upon the upper back, and successively over each shoulder and anterior part of the body. If this is done forcibly, followed by rapid drying, dressing and exercise, the patient will not become chilly. Every day larger quantities of water may be used, always avoiding chattering of the teeth and cyanosis, but not desisting because the patient complains of feeling cold or chilly.

These and other home procedures, applied with due regard to the patient's reactive capacity, and as carefully supervised by the physician as he would supervise the administration of any powerful medicinal agent, will bring relief, and perhaps entire recovery, in a large proportion of cases. If, however, skilled nurses cannot be obtained or home treatment is otherwise inconvenient, difficult, or if this domestic treatment has not been successful, a systematic course of douches, which may now be obtained without making the patient an inmate of a sanatorium, will prove satisfactory in many apparently hopeless cases. The thermic and mechanical stimuli involved in douches delivered from an easily graded apparatus, are capable of arousing depreciated neurons, enhancing vascular activity in the brain, and improving general and local nutrition. The cortical centers which are the focus of failure in these depressed neurasthenics feel the impulse of the bettered circulation and nutrition, and are restored to the normal controlling influence from which they have been deposed. Morbid ideas and illusions vanish, introspection ceases, the patient slowly but surely regains his neurovascular equilibrium. Moreover, the results thus obtained are far more enduring than those following other methods alone.

Eight years ago I was asked by Dr. Ralph Waldo to see a middle-aged lady, mother of several children. Dr. Waldo successfully repaired a lacerated perineum and cervix, by which the normal size of the uterus had been restored. The patient, however, continued an invalid, and nothing could induce her to leave the bed. She insisted upon having her uterus removed, which she regarded as the cause of her trouble. The late Dr. Charles Carroll Lee being called in consultation, agreed with Dr. Waldo that there was no indication for an operation, and suggested hydrotherapy to arouse the patient from her uterophobia. I visited her with Dr. Waldo in her suburban home, and advised a

systematic course of water treatment in an institution. She was brought to the city, being carried into her room by her husband and brother. Without entering into tedious detail, I may say that this was a pronounced type of melancholic neurasthenia. Her reaction was very feeble, but she was gradually trained to accept colder water and larger quantities by ablutions, effusions and half baths. Being thus prepared for douches, she bore these so well that after six months' treatment she was anxious and able to ride a bicycle.

Those cases of neurasthenia in which insomnia is a prominent manifestation are specially amenable to hydrotherapy judiciously added to the treatment of the general condition. I have in mind a case illustrating the value of the methodical use of water under careful adaptation to the indications presented. Mr. N. was referred to me in July, 1896, by Dr. Wharton Sinkler. The patient had suffered from "insomnia" for many years, and had "suffered much from many men," as he expressed it. Being treated at Baden-Baden, and other German resorts, for one year, he returned in despair to New York. Here he was under the care of two eminent neurologists, one of whom kept him at a sanatorium for six months under "water treatment," rest, etc. The other specialist sent him to Dr. Sinkler for a rest cure. Four months of the latter improved his flesh, but did not relieve him of insomnia. On Dr. Sinkler's advice, he came to New York, and received a systematic course of hydrotherapy, under which he recovered completely in six months. Mr. N. has remained well up to the last information.

Diabetes.—Diabetes is a malady which we are in the habit of treating in an empirical manner, with little hope of restoring health. To diminish the entrance of sugar producing food into the system is the leading therapeutic principle in the disease. That lives have been prolonged by strict attention to diet there is no doubt. But how trying is the sacrifice of comfort and happiness these patients are called upon to make if they would conscientiously follow these rigorous dietetic orders, few physicians realize fully, unless they or some near member of their family be subject to the malady.

Let me briefly advert to a method of managing the patient in this disease which has been rewarded with a success to which I have been a stranger during the first twenty-five years of my professional career, and in the scheme of which hydrotherapy enters very largely. Since I read the convincing physiological

argument made years ago by Bouchardat and Frerichs, in favor of systematic exercise in diabetes, I have endeavored to translate their reasoning into practice. We know that in diabetes the glycogenic function of the liver is in abeyance, or greatly impaired, while the muscles which also possess glycogenic function fail by reason of the lassitude incident to the disease. There being no agent by means of which the glycogenic function of the liver can be enhanced, and the cause of the loss of this function being still obscure, there is nothing left but to limit the supply of sugar-producing aliment.

We are, however, in a more favorable position with regard to increasing the functional activity of the muscles, and thus enhancing the well-known sugar-converting function of their inner fibrillar substance. By increasing, therefore, the circulation in the muscles (the principal effect of exercise) we may enable the system to appropriate a large proportion of the sugar circulating in the blood, and thus prevent its loss to the system. Clinical experience is happily in entire accord with this deduction from physiological observations. The latter are not new, but their true import is unfortunately not recognized sufficiently to become part of a scheme in treatment. Diabetic patients are warned to live hygienic lives, to keep clean and take plenty of exercise. The insufficiency of directing such a patient to exercise is soon made evident if he remains under observation. He reports that he is unable to exercise much without great fatigue. Inasmuch as the latter is regarded as detrimental, less exercise is ordered and taken, until it is abandoned altogether.

It has long been my custom to insist upon regular and sustained exercise, by which alone muscular glycogenesis can be stimulated. This requires great moral courage and energy; so great are the languor and inertness of the patient that it is almost impossible to overcome them. And here is the point where hydrotherapy enters as an important remedial agent. That great physiological stimulant, cold applied through the medium of water, especially when combined with the mechanical stimulation of the douche, arouses nervous activity, increases vital capacity, contracts muscular tissue, improves nutrition and hematosiis, and thereby increases energy, removes languor and indisposition to exercise when moral suasion has failed, and even the certain prospect of farther invalidism has not stimulated the diabetic to effort. The systematic daily neurovascular training of the cold douche has often required me by a renewal of life, a quickening of all

the functions, an elevation of vital activity, which brought the patient to tolerate and even enjoy muscular exercise without fatiguing him. Not alone do we thus obtain the salutary influence upon the muscular glycogenesis, but the improvement of the patient's general health contributes to the enhancement of his digestion, assimilation and more normal excretions; weight is gained, and patient and friends are cheered. Such stimulating effect upon the nervous system, in a disease which is so largely neurotic in many instances, conduces vastly to the restoration of health.

I have frequently observed that strict dietetic rules may be relaxed when systematic exercise and hydrotherapy are added to the management of the diabetic. Just as exact temperatures, pressures and technic are insisted upon, so must an exact record of walking exercise, which is the best, be made upon the pedometer, for guidance in future prescriptions. This disease presents a striking illustration of what I have often emphasized, in that hydrotherapy, though not directly curative, aids by enhancing the resisting capacity of the human organism.

One brief clinical history of a case of long enduring restoration must suffice to illustrate my statements.

Mrs. I., æt. sixty-three, consulted me March 2, 1892, for great lassitude, loss of appetite, depression of spirits and other symptoms pointing to diabetes. Examination revealed 6 per cent. of sugar, specific gravity 1040, quantity in twenty-four hours 81 ozs. Weighing, nude, 253 pounds, and being quite inert and languid, exercise seemed utterly out of the question. A strict anti-diabetic diet was prescribed, and rigidly adhered to, but she could not walk two blocks without dyspnea and great exhaustion, despite the most laudable persistence in her efforts to carry out my instructions. In one month she lost only $\frac{1}{2}$ per cent. of sugar. In order to reduce her weight and improve nerve and muscle energy, she was induced to drive in a carriage five miles to receive the following treatment: Once a week she received a hot-air box bath until she perspired freely. This was followed by the circular douche at 90°, for half a minute, and by the fan douche at 80°. This was succeeded by active massage and resisting movements for fifteen minutes. Five times a week she received a tonic hydriatic procedure, beginning with a dry pack for half an hour, for the purpose of filling the cutaneous vessels, and followed by a general ablution at 70°, with good friction. On April 15th, or in two weeks, she had lost six pounds and was

able to walk six blocks twice a day. A week later specific gravity of urine was five points less, sugar $\frac{3}{4}$ per cent. less. Wet packs in sheets wrung out of water at 50° were given, for forty-five minutes, followed by half baths of ten minutes, at 85° , with active friction in tub, followed by massage and resisting movements for fifteen minutes. The object of this procedure was to increase tissue change and improve the circulation in the muscles. This effect was increased a month later by substituting the jet douche under thirty pounds pressure, at 60° F., for the half bath. It was delightful to observe how this large and unwieldy woman gained in energy, desire and ability to walk, so that at the expiration of three months, despite the summer heat, she was able to walk four miles a day, morning and evening. The diet remaining the same, sugar decreased gradually from the time she was able to walk a mile daily, until eight months after beginning treatment she was entirely free from sugar. She remains free from diabetes, although eight years have elapsed. Her diet is no longer strict, the only precaution being to resort to more muscular exercise when farinaceous food is indulged in.

If time permitted I should gladly dwell upon other chronic affections in which hydrotherapy has done signal service.

Cases of *nervous dyspepsia*, for instance, which had run the gamut from pepsin to the empirical hot water and Saulsbury steak, thence to the scientific gastrologists, who base their treatment upon test-meal analyses, have been restored to health, when the stomach was not regarded as a special organ, but as an integral part of the whole organism, and the nervous system, which supplies the stomach with functioning capacity, was refreshed and invigorated by daily neurovascular gymnastics with cold water. My case records are filled with such achievements. In *hysteria*, whose pseudo-manifestations so often strike terror into the hearts of families and drive the doctor to his wits' ends, Charcot has signalized his greatest triumphs with the spinal douche. Erb, Krafft-Ebing and Charcot's successes in the Salpêtrière have confirmed the paramount value of this special treatment. The records of the Montefiore Home, as well as of my private practice, have established the clinical fact that in the most obstinate and unpromising forms of *hysteria*, the cold rain, fan and jet douche, carefully adapted to the case, is often the last and best resource.

Obstinate cases of neuralgia, sciatica, neuritis, lumbago and allied diseases, are relieved, and often removed, by various hot

applications, followed by cold douches. "Pain is the prayer of the nerve for better blood," said Romberg, and I know no means of enhancing hematosis like bringing the blood to the skin and pulmonary vesicles by judiciously adapted douches.

In spasmodic and bronchial asthma that has resisted other treatment, marked improvement has followed under hydrotherapy. I have in mind a case in my own family which received the kindly and most skilful management from eminent colleagues in vain, but which began to improve only after hydrotherapy was added. Affusions with water at 75°, daily reduced until 45° were reached, while the patient sat in shallow water at 100°, was the simple measure which proved the turning point in this most distressing case. The douche could not be obtained because the patient was at Long Branch.

For *cardiac cases*, you are aware what hydrotherapy in the form of the Nauheim baths, has done in restoring failing or lost compensation. In these cases the effect is produced by combining the chemical with the thermic peripheral irritant.

In *angina pectoris*, which is more often of the false than the true type, a systematic course of hydrotherapy has often served me well after other methods pursued faithfully by other colleagues and by myself, had failed.

Another set of cases which are greatly benefited by hydrotherapy are those unsatisfactory rheumatic, gouty and lithemic conditions which are the bane of the doctor's life, and which we are often so glad to rid ourselves of by sending them to the hot springs. At these resorts many remarkable cures are effected by removal of the patient from unfavorable environment and by the judicious application of baths and douches under the direction of their skilful physicians. Unhappily, few of our patients are able to leave their homes for this purpose, and for these much may be done by methodical hydrotherapy at home. The course adopted at these springs may be usefully imitated wherever douches under pressure of twenty to thirty pounds can be had. This treatment stimulates the emunctories, especially when it is combined with the *abundant* and *methodical* drinking of water. Products of retrograde tissue-change are eliminated, normal products are formed. Although the patient may lose flesh, his appetite, sleep and general comfort are increased, and if the dietary and mode of life are properly regulated his health may be entirely restored. While we cannot approach the rapid and decided effects attained by our colleagues at the hot springs, to whom such cases

should preferably be referred, great relief may be afforded, and even complete restoration may be slowly attained by the hot douche and bath treatment at home.

In this type of patients I have often observed great relief, and even complete restoration, slowly obtained under the hot bath, douche and massage treatment at home.

Of failures in chronic diseases I have, alas, seen too many, especially in cases referred as a last resort by colleagues whose efforts would have been crowned with success in the earlier stages of disease. The facts and deductions of this essay are the result of observations made upon over 100,000 recorded procedures in neurasthenia, hysteria, some of the psychoses, phthisis, gout, rheumatism, dyspepsia, cardiac diseases, sciatica and other neuralgias, obesity and neuritis. The application of this method of treatment to such varied diseased conditions is rendered possible by its flexible nature, which enables us to adapt it by modifications of temperature, pressure, and duration and numerous technical details to the most varied pathological manifestations, provided the physician has mastered its rationale and mode of action, and its details are not left to the judgment of bath-nurses.

By utilizing only institutions which are under medical supervision and direction, the physician may obtain all the valuable effects of hydrotherapy, without subjecting the patient or himself to the dangers of its empirical application, which have so often brought disaster to both and discredit to this remedial agent. If water is to occupy a lasting position among remedial agents, it *must remain in the hands of medical men entirely*, its theory and practice must be taught in our schools, and its application demonstrated in our hospitals, as is done in Vienna and Heidelberg. Only by this means will water be rescued from the hands of the empirics, who, as Kussmaul has justly said, thrive upon it to the detriment of the educated practitioner.

In conclusion let me urge that more attentive consideration be accorded to the therapeutic uses of water: that the principles upon which its action is based be mastered, that it be applied systematically and persistently, and that the causes of failure, which will often be discovered in imperfect application, be studied.

By recording hydriatric prescriptions, as is done with the medicinal and dietetic, case histories may be made to furnish guidance. Finally, I appeal in behalf of more explicit instruction in the principles and technic of hydrotherapy in your medical

schools. This is the most important agency for diffusing a better knowledge of this neglected, but important, branch of therapeutics.

DISCUSSION.

Chairman and Gentlemen: I consider it an honor to be requested to discuss the paper presented to you this evening.

Dr. Baruch's work of interesting and enlightening the medical profession of this country on the value and importance of hydrotherapy is well known to all of us. He deserves our special gratitude for his successful efforts to impress us with the fundamental facts underlying the scientific methods of using water for therapeutic purposes.

Only by observing the wonderful results obtained by the method of treatment one can form an idea of the therapeutic value of water. I was astonished to see the great improvement in severe cases of grip-pneumonia in Prof. Winterwitz's clinic through this remedy. The cyanosis disappeared, a good peripheral circulation was established, and the pulse improved.

Of the numerous valuable points contained in Dr. Baruch's paper I will only mention one, which appears to me of special importance. I refer to his successful treatment of cases of pulmonary tuberculosis in its early stages by hydrotherapy. Rest is one of the chief requirements in the treatment of this disease. Exercise having been found to be injurious, we find in hydrotherapy a means of improving the circulation without causing the undesirable effects of fatigue.

The good results obtained by hot water applications can be as little questioned as those resulting from the proper use of cold water. The former relieves the severe pain of ulcer of the stomach, the intestinal colicky pain, and often the pain due to congestion and inflammation.

Dr. H. P. de Forest: To attempt to add information of material value to the general subject of hydrotherapy would, under the circumstances, be something in the nature of "carrying coals to Newcastle," and will not be attempted so far as Dr. Baruch's paper is concerned. The present speaker has had an opportunity, however, to make a practical application of some of the forms of treatment that have been mentioned, and to these he will confine his attention.

Typhoid Fever.—Much time, labor and printers' ink have been expended in a description of the phases of this disease assumed

in various army camps during the recent Spanish-American war. At Jacksonville, Florida, where the writer was stationed during his military service in the field, the hot and dry climate, rigorous military discipline, frequent drills in the blazing sun, profuse perspiration and abundant draughts of an artesian water, well supplied with the sulphates of sodium and of magnesium, had given rise to "a condition and not a theory," affecting the entire Seventh Army Corps, and well characterized by the soldiers' appellation of "the Jacksonville trots." The importation of typhoid fever with a Mississippi regiment, carelessness in the care of the sinks, and a profusion of flies did the rest, and within a month in one division about five hundred cases of typhoid fever developed.

The treatment was of necessity primitive. Ice save in small quantities was unobtainable; requisitions for strychnine, digitalis, or other similar drugs were not honored, although the medical officer in charge of medical supplies made frequent requests for them; milk save of the condensed variety was scarce, and each medical officer in charge of a ward had to get along as best he could.

In my own ward, where 198 cases of typhoid fever were cared for, the routine treatment was extremely simple. Quinine was the only drug employed, with the idea at first that it would be of value as an intestinal antiseptic, and so well did it work that this was continued.

If the patient's temperature reached 103 degrees or over there was a standing order that he should receive a cold bath. A full-sized rubber sheet was slipped beneath him on the cot above all of the bedding; the lower two corners were fastened together with a safety pin and the trough thus formed made to discharge into a tin pail containing a solution of carbolic acid. Another pail or basin was filled with broken ice and over this was poured about a pint of alcohol when we had it, and when not, this was not used and the water from the fast melting ice answered about as well. This cold solution was then applied by a washcloth to the body and limbs of the patient, while with the aid of four or five nurses or attendants these were kept well rubbed and red during the entire bath. An icebag was kept on the head of the patient all of this time as well. As soon as the temperature was reduced to 102.5 degrees the cold bath was stopped, the man was well dried, the rubber sheet was removed, and he was carefully wrapped in a sheet and left in quiet. Care was taken to move

the patient as little as possible, and to avoid rubbing the abdomen, though the friction on the chest and limbs was freely given and continued. If any sign of depression was shown a small amount of whiskey was given.

Such a bath was not infrequently given twice, thrice, or even four times in a day.

One man died of exhaustion after having been sick and at work for three weeks before he came into the hospital with a temperature of 105 degrees. Another man, at night, after vainly trying to attract the attention of one of the hopelessly inefficient men detailed from a company as nurse, because by law all regimental hospital corps were abolished, gave up the effort, arose, and went the entire length of the ward and used a commode; intestinal perforation occurred and he died on the following day. Another ate an orange slipped under the edge of the tent by a comrade; he must have eaten it seeds and all, for at his autopsy I removed several orange seeds from his peritoneal cavity and found three perforations through which they had made their way, and which they had doubtless caused. With these three exceptions all of the 198 cases recovered. Such a result was a source of much satisfaction, and to hydrotherapy I attribute a large part of its success.

Insolation.—During one of the extremely warm summers a few years ago the speaker, while ambulance surgeon, had many cases of sunstroke to deal with; in one case twelve in a single day. Here, too, practically the only treatment used was cold water, combined with brisk friction of the entire body. About five persons were needed to place the victim in a bathtub filled with lukewarm water, which was progressively cooled by the introduction of pieces of ice till the water was about 50 degrees, and here the patient was kept till his temperature was reduced to 103 degrees, all of the time being given brisk friction and massage of the entire body.

Of the twelve mentioned but one died, though all had temperatures above 106 degrees, and several as high as 110 degrees. The fatal case was a man who had been loading sand in a sandpit; here he was found on the hot sand when the wagon returned for the next load. All the sphincters were relaxed, he was comatose, but his temperature we never knew, for we had no thermometer that would register above 112 degrees.

The scientific explanation of the action of water in such cases

has been dwelt upon by more competent persons than myself, but with the clinical results obtained I am quite satisfied.

Dr. Baruch closed the discussion. He was gratified to discover from the discussion just made of the subject, that there is not so much need of missionary work in Brooklyn as he had thought.

The remarkable results detailed by one of the speakers have surprised him and augured well for the future success in hydrotherapy. The military experience of Dr. deForest is unique, when we bear in mind the usual fatality of typhoid fever during the Cuban war. His method of using cold water was not only ingenious, but it was also in strict accord with the laws of hydrotherapy, which demand that every application of cold must be followed by reaction. The brief and rapid rubbing with very cold water is an ideal substitute for the Brand bath, and always convenient. Its repetition every two hours would certainly be useful in the average case of infectious fever.

I am glad to learn Dr. deForest's success in treating insolation. The common and very fatal error is too often permitted by regarding the chief indication to be reduction of temperature. So long as the antithermic idea exists 30 to 60 per cent. will die. The correct practice is to stimulate the central nervous system by friction with cold water, not by bathing with ice water; nor is it necessary to reduce the temperature to normal, or even below 100. Stimulation, not antipyresis, should be the watchword. In my book on hydrotherapy the statistics of correct and incorrect hospital treatment in insolation during the epidemic of 1896, are so clearly brought out that no doubt remains of the fatality of very cold baths in thermic fever. Thus is demonstrated the great need of studying the rationale of hydropathy and of individualizing in accordance with the indications of each case. If I have made the necessity clear to-night I shall be content.

TUBERCULOSIS OF THE TESTICLE, SEMINAL VESICLES AND PROSTATE.

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Read before the Medical Society of the County of Kings.

The testicle is frequently the seat of tuberculosis, which always begins in the epididymis and may subsequently involve the body of the testicle.

The epididymis may be affected in three ways:

A.—Primarily, which is most frequent; or,

B.—Secondarily, from a tubercular deposit in one of the other genito-urinary organs; or,

C.—In consequence of a general tuberculosis.

Tubercular bacilli conveyed to epididymis through the following channels:

When the epididymis is affected *primarily* the bacilli are introduced into the general blood circulation and carried *directly* to the epididymis by the *spermatic* artery.

When the infection in the epididymis is *secondary*, it is frequently derived from the seminal vesicles. These are often affected by tuberculosis, as the result of tubercle bacilli which were introduced into the urethra during coitus.

After the tubercular process is established in the vesicles the bacilli are carried along the vas deferens and lodge in the epididymis.

If the tuberculosis in the epididymis is derived from the bladder, prostate or other adjacent organs, the infection is usually carried by means of the lymphatics.

There are certain *predisposing causes* to tubercular infection, such as hereditary tendency to consumption and such local causes as the prolonged congestion from venereal excitement, an attack of gonorrhea or slight traumatism. These causes all probably operate in the same way, and act by lowering the resistance of the tissues and permitting the tubercle bacilli to take effect.

The time of life at which the testicle is most liable to be at-

tacked is during its period of functional activity, from the age of puberty until past the fiftieth year.

Course.—One or two small nodules form in the head of the epididymis. Occasionally they remain latent for years, or may become encapsulated and converted into fibrous tissue.

As a rule, however, the nodules grow and coalesce until the whole epididymis is so much enlarged that it surrounds the testicle.

After a time the tubercular mass softens, becomes cheesy and breaks down.

The skin of the scrotum lying over the nodules is attached to the testicle, glued fast by the inflammatory adhesions, and the pus is discharged through an opening in it from the tubercular abscess, leaving a fistula.

The disease seldom limits itself to the epididymis, but if left alone spreads to the testicle. This occurs in three-fourths of the cases, as shown by autopsy.

After the abscess in the epididymis or testicle has opened, a considerable amount of attached skin, lying over the nodule, may slough away, leaving an opening in the scrotum, through which a mass of new granulation tissue growing from the testicle or tunica albuginea may protrude, forming *hernia testes* or *fungus testes*.

In the earlier stages of the disease, before abscess formation, the *tunica vaginalis* is affected by the inflammation, and if an excess of fluid is secreted by its walls, hydrocele may be present.

On the other hand, adhesive inflammation may take place and the sac of the tunica vaginalis become obliterated.

Occasionally purulent collections containing tubercle bacilli are found in small cavities, circumscribed by the adhesions.

The *vas deferens* is always affected in time, and shows small localized nodules in its continuity, which are most liable to be located at its extremities, *i.e.*, near the seminal vesicle and the epididymis, the intermediate portion being free.

More rarely the cord is uniformly thickened, with a general diffuse tubercular infiltration.

The other testicle in turn becomes affected and the disease runs its usual course.

Although tuberculosis of the testicle usually runs a very slow and insidious course, the nodules developing gradually until the formation of pus, rare cases are occasionally met with in which the disease runs a very acute course, called by Reclus

GALLOPING CONSUMPTION OF THE TESTICLE.

The nodules which had existed quietly for a time, from some cause, take on a very rapid growth, and caseation and abscess formation occur in about three weeks. In this form the testicle itself is always attacked, and it is usually accompanied by a purulent urethral discharge containing tubercle bacilli.

SYMPTOMS AND DIAGNOSIS.

Tubercular nodules may exist in the epididymis and remain latent for months without causing any discomfort, and if discovered they are usually found accidentally.

Discomfort does not occur until inflammation begins, with its pain, swelling and subsequent abscess formation.

In the early stages, examination shows one or more small nodules of a peculiar stony hardness to the touch, located in the head of the epididymis and along the cord.

Later in the disease, after the nodules have become cheesy or broken down, the skin is found to be adherent over a circumscribed tumor, with hard walls and a central softening, which may yield fluctuation if pus is present.

Although the nodule may be actually located in the epididymis, the enlargement of this part of the organ is so great that it may surround the body of the testicle, giving rise to an appearance as though the nodule were in the testicle itself.

Suspicion as to the tubercular nature of a growth should always be aroused by the history of an epididymitis coming on without any apparent cause, or after a slight injury, and if hard nodules are found in the seminal vesicles or prostate, the diagnosis of tuberculosis is sufficiently established and may be confirmed by finding tubercle bacilli in the contents of the cheesy nodules.

Under treatment the severe inflammatory symptoms of epididymitis quickly subside, and are usually followed by a general softening of the tumor and formation of abscess, differing in this way from a simple epididymitis, which, after it is over, leaves a hard and thickened epididymis.

Prognosis.—It is a very rare occurrence for tuberculosis of the testicle to become permanently cured without operation, even under the most favorable climatic conditions.

When a cure does occur it is through a process of encapsulation and fibroid degeneration, but it often happens that the process of encapsulation only closes up the infective material for a time, and under favorable conditions the deposit again becomes

active and continues its usual course of caseation, abscess formation and infection of remote organs.

Tubercular nodules, however, may remain latent for many years before abscess forms, or until a slight traumatism or attack of gonorrhea lights them into activity.

After suppuration the disease runs a rapid course and leads to a fatal termination, either by inducing tuberculosis in some other organ, or by the exhaustion and fever incident to the occurrence of suppurating fistulas.

Treatment.—Palliative measures are unfortunately only applicable to people of means, who are able to lead an out-of-door life, or take a long sea voyage, and who can have constant medical supervision. Such measures may retard the caseation of the nodules, if begun in the earliest stage, while the deposits are small and hard.

As soon as the deposits begin to soften and become cheesy, surgical measures should at once be resorted to, as waiting for resolution, which never occurs, is only a waste of valuable time, and often allows the extension of the disease to remote organs.

In the case of hospital patients, who are poorly nourished and badly housed, and who cannot have suitable climatic surroundings, the nodules should be removed at once.

Operative Treatment.—Erasion or curetting is the operation which is applicable to the cases where one or two small nodules exist in the epididymis. The softened area should be opened and the contents well scraped out with a sharp spoon, iodoform rubbed in, and the cavity packed and allowed to heal by granulation.

Castration.—Is the operation best adapted to the advanced cases. The indications for its use have been summarized by Jacobson as follows:

A.—When erasion has failed in lesions of the epididymis.

B.—When discharging fistulas are present or are numerous.

C.—When after erasion, persistent swelling of the testicle, accompanied by night sweats and loss of flesh, is present.

D.—When fungus testes exists or when the body of the testicle is involved.

E.—In the presence of *purulent* hydrocele.

Castration is used in two different classes of cases:

CLASS A.—In *primary* tuberculosis, when the disease is limited to one testicle and has not extended too high along the cord, and when the bladder, prostate and vesicles are not affected. In such

a case a reasonable hope may be entertained that the disease may be permanently eradicated from the body.

If the seminal vesicles are affected the indication for castration is not so clear, although if the deposits are small and of recent date and the patient's general condition favors rapid healing, removing the testicle with its diseased nodules may retard the development of the tubercular foci located elsewhere.

CLASS B.—In cases where other organs of the body are tubercular and a cure is impossible, hygienic measures alone are the only treatment applicable.

An exception should be made to this rule, when the testicle is disorganized and the scrotum riddled with sinuses discharging pus. Here castration is indicated to relieve the patient from the drain of the exhausting discharges and from one source of his discomfort.

In the operation of castration the infiltrated skin and cellular tissue should be removed. The spermatic cord should be divided as high up as possible, if necessary laying open the inguinal canal and removing the cord as far as the internal ring.

The cord should be tied with a double ligature through it, as a single ligature is liable to slip off and cause fatal hemorrhage.

TUBERCULOUS VESICULITIS.

The seminal vesicles are usually involved by an infiltration with tuberculous nodules, during the progress of a case of genito-urinary tuberculosis.

The infection may extend from tuberculous deposits in the posterior urethra or prostate, or may result in consequence of an extension of the disease from the epididymis along the vas deferens.

It is supposed that the involvement of the vesicles in the majority of cases is *secondary*, although J. W. White has noted that the vesicles often show evidences of infection weeks or months before the tuberculous process is evident in the corresponding epididymis.

A chronic or subacute inflammation of the vesicle, either gonorrheal or simple, is a strong predisposing element in allowing the tubercular process to become engrafted upon these organs.

Uncomplicated tuberculous disease of the vesicles is never acute except in the presence of a mixed infection, either with the gonococcus or staphylococcus.

In this case an acute suppurative inflammation takes place

within the cavity of the vesicle, which becomes filled and distended with pus.

Uncomplicated tuberculosis begins insidiously and has a notable tendency to invade the surrounding tissues, and the process often becomes quiescent, although liable to take on renewed activity upon slight provocation.

A few cases, however, result in breaking down of the tuberculous nodules with the formation of a peri-vesicular abscess, which discharges either through the rectum or perineum, leaving a fistula.

The symptoms of tuberculosis of the vesicle are not marked, and this condition exists unsuspected until a rectal examination is made, disclosing hard nodules in the walls and peri-vesicular connective tissue.

As both vesicles are infiltrated and thickened as well as the connective tissue around them, the mass is continuous with the prostate, and it is no easy task to distinguish these structures apart. In advanced cases the prostate is almost always the seat of tuberculous deposits as well.

The *treatment* consists in hygienic measures alone, of which the most important is an out-of-door life in a suitable climate.

Cod liver oil and creosote are the drugs most in vogue.

Operative treatment is in general not required in acute suppurative inflammation caused by a mixed infection, when the accumulation of pus takes place *within* the cavity of the vesicle, as the pus drains out into the urethra through the ejaculatory duct.

When, however, the peri-vesicular tissue infiltrated with tubercular nodules breaks down and forms abscess, it is necessary to evacuate the pus. This may be accomplished through a free incision in the perineum, or as Fuller and Routier prefer, by thrusting a director into the tumefaction, through the rectum, and divulging the tissues until an opening large enough to admit the finger is obtained.

Extirpation of the vesicle has been attempted a few times for tuberculosis, but the results are far from satisfactory.

From the inaccessible location of the vesicles an extensive incision is required to reach them, and the hemorrhage is difficult to control.

The bladder walls and prostate are generally affected, and it is difficult or impossible to remove all the diseased material. The wound is slow in healing, and the confinement to bed exerts

a bad influence upon the general condition of the patient, so that the tuberculous deposits, which are usually present elsewhere, advance in consequence.

TUBERCULOSIS OF THE PROSTATE.

The prostate is involved in nearly every case of genito-urinary tuberculosis.

In twenty-six cases of tuberculosis of the prostate reported by Socin, in twenty-four of them, *other* genito-urinary organs were affected, and only in *two* did the genito-urinary apparatus *escape*. In these two instances the lungs and bones were the seat of tubercular deposits.

Although Sir Henry Thompson denied that the prostate could ever be the seat of *primary* tuberculosis, later investigators have proven conclusively that it may be, and Desnos and Kizywicki even go so far as to state that, in their opinion, in most cases of genito-urinary tuberculosis, the prostate is the organ which is first infected with tubercle bacilli and from that focus the infection subsequently travels to the adjacent structures.

This point is important to bear in mind in connection with the operative treatment which will be considered later.

The time of life at which tuberculosis is most apt to fasten upon the genital organs is that period at which sexual activity is most highly developed, and consequently we find that our patients are usually between twenty and forty-five years of age.

Predisposing causes play an important rôle in the etiology of tuberculosis of the prostate. Anything which induces prolonged and oft-repeated congestion of the post urethra weakens the resistance of the tissues; consequently a tubercular outbreak is more liable to occur in the person of a young man who has practiced some form of sexual abuse, or has been the subject of a prolonged attack of gonorrhea of the post urethra.

But this in itself is not sufficient to cause the disease, and to bring this about the tubercle bacilli must be actually introduced *into* and develop in the substance of the gland.

As to the *modes of infection*, the micro-organisms are most frequently brought to the prostate in the blood circulation, often from a tubercular deposit in some distant organ.

In other cases they may be taken into the body through the respiratory or alimentary tracts, and passing along with the blood current be ultimately deposited in the prostate.

The inoculation of bacilli, however, may be *direct*, and be occasioned by an infected catheter or through coitus with a tuber-

culous female, or the prostate may be infected by a process of extension from some neighboring organ.

Pathology.—A deposit of tubercle takes place in the substance of the prostate, and either one or both lobes are affected.

The tubercular nodules are multiple from the beginning, or else soon become so, and they enlarge until several coalesce, when they break down and form abscess.

Unless removed by operation, the pus bursts through into the rectum or urethra, or even the hypogastrium, and multiple fistulous tracts are formed.

In rare instances the cheesy mass becomes the seat of calcareous changes, or the fluid portion of the mass is absorbed and the residue is encapsulated and a healing of the lesion results.

It is important to note that the bladder and seminal vesicles are always involved sooner or later in the course of the disease.

The epididymis is also affected, although in many cases this organ is the first attacked, and the infection extends to the prostate subsequently.

Symptoms and Course.—If the process begins in the central part of the prostate no definite symptoms are caused, but if the nodules are located superficially and cause a bulging of the prostate toward the rectum, a sense of weight in the perineum and difficulty in defecating is experienced.

If, on the other hand, the tubercular foci lie close to the urethra, the symptoms are those of post urethritis, viz.: frequent and urgent urination accompanied by a muco-purulent discharge from the urethra and shreds in the urine.

There is no distinct pain after the act of micturition, but a feeling as though the bladder was not fully emptied.

Defecation spermatorrhea often occurs if the deeper lying prostatic tubules are infiltrated with nodules, and another form of secretion from the meatus is occasioned by the breaking down and discharge of small abscesses through the urethra.

Hematuria is a frequent symptom, and is not constant but intermittent. The blood comes at the end of urination, and is not due to an ulceration of the urethra, as formerly supposed, but merely to the congestion of the prostate.

In uncomplicated cases, *pain* may be excruciating, and is sometimes so severe that it overshadows all the other symptoms.

As the disease progresses the bladder is always affected. This is announced by the occurrence of pain after urination and

tenesmus, and as the cystitis grows worse the bladder symptoms become the marked feature in the case.

In most cases of tuberculous prostatitis death is caused by an ascending infection involving first the bladder and subsequently the kidneys, or the lungs may be attacked, or a general miliary tuberculosis may be established.

In a few rare instances the disease remains limited to the prostate; an abscess forms, which breaks and discharges, the cavity cicatrizes, and a cure follows.

Diagnosis.—On rectal examination the tuberculous prostate will be found enlarged in one or both lobes. The enlargement is distinctly nodular or lumpy, and at first of a stony hardness. After the abscess forms, points of softening with fluctuation can be readily felt.

It is often extremely difficult, indeed, sometimes impossible, to determine whether the enlargement is in the prostate or involves the seminal vesicles, for these different organs may be so blended together by the inflammatory exudation that the lines of demarcation cannot be defined. On this account it was formerly supposed that every tubercular process in this region was confined to the prostate, whereas we now know it to be true that the tuberculous process may attack prostate and vesicles together, or either organ may be involved alone.

The gonorrheal inflammations of the prostate, chronic prostatitis, or the acute suppurative form, resemble in physical signs the tuberculous disease, and it is impossible to definitely establish the diagnosis of tuberculosis until the presence of tubercle bacilli has been demonstrated in the secretions. These may be collected by expressing, with the finger in the rectum, the secretions from the prostate gland, and the bacilli are also generally present in the discharge from the meatus which so often exists.

If no tubercle bacilli are found on examining the secretions, guinea pigs may be inoculated with the discharges, and if the pig develops tuberculosis the diagnosis is of course established.

In cases of *general* tuberculosis it is usually safe to consider every enlargement of the prostate tuberculous in character, and the only difficulty in diagnosis arises in the cases where the prostate is the seat of *primary* tuberculosis.

The *prognosis* is, of course, of the gravest, although when the tuberculosis is limited to the prostate alone spontaneous cure sometimes occurs through healing of the cavity after the abscess has formed and burst.

Unfavorable elements in the case are a hereditary predisposition to tuberculosis and a tendency for the disease to extend and involve other organs.

Treatment.—The general treatment consists in endeavoring to vitalize the tissues by means of a life in the open air or a prolonged sea voyage, abundance of nourishing food, and the administration of cod liver oil, creosote, guaiacol and other anti-tubercular remedies.

There is a difference of opinion as to the advisability of beginning local treatment early. In general it is better to avoid instrumentation, for the reason that the local resistance of the tissues is reduced and infection of the bladder with other micro-organisms readily occurs.

On the other hand, instillations into the post urethra in the early stages have their advocates. Guyon advises sublimate sul. 1-5,000 to 1-3,000, and iodoform in glycerine is warmly recommended by Berkeley Hill. Every one is agreed that nitrate of silver uniformly acts badly, and its use is contraindicated.

After cystitis has set in the principal indications are to control the pain and tenesmus, but these matters have been considered in another section.

Under the head of operative treatment may be considered, first, the suggestion of Hoffmann, which was to inject 10 per cent. emulsion of iodoform and glycerine into the *substance* of the prostate by means of a long needle thrust in through the perineum. This procedure has never gained favor, and is to-day practically abandoned.

A few years ago, when the dictum of Sir Henry Thompson that tuberculosis of the prostate was never primary, but always secondary to deposits elsewhere, was accepted as final, it was thought useless to attempt to extirpate the diseased prostate, and the rule was only to operate when pus had formed, in order to evacuate the contents of the abscess.

At the present time the opinion has changed, and the operation of laying bare the prostate by a semi-lunar incision curving around the rectum and removing all the diseased tissue with a curette, commends itself as a rational and conservative procedure, and one which is likely to bring about a radical cure, when the disease is limited to the prostate alone.

When the prostate is secondarily affected and deposits exist in other organs the indication for operation is not so clear, but even in these cases an operation is likely to save the patient

the misery and suffering from a prolonged course of suppuration of the prostate, with the slow formation of fistula.

DISCUSSION.

Dr. Bristow: Just a word in regard to the diagnosis of the disease when it exists in the kidney. One point which has not been mentioned, and which I think is important, on which Fenwick, of London, and Willy Meyer, of New York, lay great stress, is, that when a cystoscopic examination is made of the bladder, where the kidney is tubercular the urethral cone on the side of the affected kidney is seen to be much injected. The zone of redness about the urethral cone does not exist in ordinary pyogenic infections of the kidney, and what little experience I have had with the cystoscope has confirmed this. For instance, in a case where there was no tubercular infection, but evidence of a pyogenic kidney, the urethral cone was hardly injected at all, whereas in the case of a tubercular kidney the urethral cone was very much injected. In these cases of renal tuberculosis I believe you always have had a lessened resistance in the kidney, and the secret of that lessened resistance is very frequently due to irritation of the kidney tissue itself by uric acid and oxalate of lime crystals. In these cases of tubercular kidney when only one gland is affected the best results are to be secured by an early nephrectomy, but the radical operation can only be done when one is certain that the other kidney is free from disease. When the contrary is the case the complete removal of a single kidney is of course out of the question. Not infrequently, as in a case of my own, there may be multiple abscesses on one side, with but little evidence of involvement of the opposite kidney, save, perhaps, the appearance of tubercle bacilli in the segregated urine. Here, too, removal of the suppurating kidney is unwise, as if this is attempted there is almost a certainty that the other kidney will strike work as a result of the operation. In such cases as this the only procedure which can be done, and even this with considerable risk, is that which has been suggested by Fenger, namely, to split the kidney in its long diameter and curette the different tubercular foci thoroughly. This can be done without much hemorrhage with the aid of the actual cautery, and is the only way in which one can be sure of reaching all the tubercular foci.

In regard to the treatment of tubercular testicles, I think so

far as the etiology is concerned that when you get tubercular testicles in young men, that in almost all cases there is a previous history of gonorrhea. There is an important question comes up in the treatment of such cases: What is the best thing to do when you have a double infection of both testicles in a young man of twenty-three, as I had a year or two ago? Undoubtedly the safest thing to do is to take out those testicles, but such a procedure, for obvious reasons, must be avoided if possible. In this case in point I took out one testicle completely, taking the cord out to the internal ring. There was infection along the cord, and the other testicle I split after the manner which I have described as applicable to the kidney, making the incision from pole to pole, curetted out all the tubercular material, and entirely removed the epididymis. That did not leave him a functioning testicle, but it left a fibrous mass which looked and felt like a testicle. In this case that procedure, as far as the results on the health are concerned, proved to be excellent. The patient has had no tubercular trouble anywhere else. He was sent to the country, and appears at present to be apparently well and healthy.

George A. Evans: I have practically no knowledge, or very little, of tuberculosis as it affects the genito-urinary organs. Of course I see advanced cases of pulmonary tuberculosis in which other organs become secondarily infected. I have seen a few cases of pulmonary tuberculosis which seemed to have had their start from attacks of gonorrhea. It has been simply my impression that it has started in that way, from the symptoms which occurred. I was very glad to hear that matter spoken of. Cases of tuberculosis of the kidneys are quite common in advanced cases of pulmonary tuberculosis. Most every general practitioner will come across them, and there is nothing to be done in those cases.

Dr. Victor A. Robertson: Perhaps it might not be amiss to emphasize the fact that Dr. Von Glahn referred to in the methods of diagnosis the bacteriological findings in cases of suspected tuberculosis of the genito-urinary passages, and that is the finding of the tubercle bacillus. There are several organisms which might be mistaken for this bacillus, and the commoner one, which we are most apt to meet, is the smegma bacillus, which he referred to. Of course, the bacillus of leprosy might be confounded with it, but that is so rarely found that we might dismiss that. My attention was called recently to the smegma bacillus, and I have been recently endeavoring to find this organism in discharges

from the genito-urinary passages, and I frequently find it in gonorrheal patients in both sexes, and in secretions about the vulva. This organism, morphologically, under the microscope, bears a very close resemblance to the tubercle bacillus; in fact, a competent microscopist could not determine whether it was or was not the tubercle bacillus from mere microscopic examination. It is only necessary to emphasize the fact that in any case of primary renal tuberculosis, for example, in which there are no foci elsewhere, in the lungs or anywhere else in the body, which would put us on the track, and the bacteriological findings alone are to be depended upon to help out the diagnosis—it is only necessary to emphasize the fact that after we discover the organism in the discharges, an animal inoculation is decidedly essential to find out whether they are really pathogenic organisms or not.

The President (L. S. Pilcher) said that he would take the opportunity to emphasize the value of suprapubic cystotomy in cases of tuberculosis of the bladder. Cases of intractable cystitis which now and then present themselves, when they have resisted for a reasonable length of time the proper use of the ordinary means of controlling an ordinary infective cystitis, naturally suggest the presence of a tuberculosis as their cause.

One of the most valuable means which the surgeon has of relieving the symptoms which arise from this intractable cystitis is to be found in the practice of drainage, more or less prolonged, through a suprapubic opening. Unquestionably, as has been stated in the papers of the evening, all observation which is in accordance with the accumulated experience and observations of surgeons far and wide, the great agent that is of value is overcoming bladder tuberculosis is improved general hygiene, and possibly the value of a suprapubic cystotomy is to be found in the manner in which it assists the general well being, the general nutrition, the freedom from pain, the rest; the general hygiene, in other words, of the patient, who up to that time has for so long a period been tormented by the continual demands for relieving his irritated bladder.

I call to mind particularly two cases of young men that have been under my observation for quite a series of years. Ten years ago a young man some twenty-one years of age at that time was referred to me by Dr. Fairbairn, on account of a cystitis that was intractable. He was subjected to cystotomy, and upon the exposure of the interior of the bladder the condition of tubercular infection was unmistakable. He was drained for some time; he

recovered. Then a couple of years thereafter he returned in consequences of tuberculosis of the inguinal glands, which were likewise removed. He recovered from that, and then I lost sight of him until within a few weeks past, when I was hailed on the street by as fine-looking a specimen of manhood as one would meet any day—a young man whom I did not recognize at first, who, recalling himself to my memory, I found to be this man who had been operated on by me for tuberculosis of the bladder and for removal of his inguinal glands ten years ago. Unquestionably the curative change derived in that case was due to the improved hygiene which it was possible for him to enjoy by the local relief to his sufferings that the operation occasioned, and not by any special curative process or result *per se* in the operation.

A year or two before that case a similar case had presented itself, who passed through the same experiences, and although drained, I have occasion to know, for I saw him last fall, that twelve years have now passed since his bladder was opened and he is still in good health, although he has a contracted and irritable bladder, and is never able to retain his urine more than a couple of hours at a time; nevertheless, his nutrition is good, the urine is free from any appearance of active degenerative processes within his bladder, and his life has been prolonged for twelve years. So that adding these experiences to the experiences which are many in the literature, it would seem that there is a positive value to a cystotomy in cases of tuberculosis of the bladder, which perhaps does not exist in cases of nephrotomy for tuberculosis of the kidney. For, as was also stated in the remarks of Dr. Van Glahn on that subject, undoubtedly the results of nephrotomy have been far more disastrous in cases of tuberculosis of the kidney than have been the results of nephrectomy, and we are warranted in accepting, at present at least, that the best that surgery can do in cases of renal tuberculosis is to remove the diseased organ.

Dr. Fraser: A great many of these cases of tuberculosis of the bladder will live along for a great many years and recover simply from living in the country, passing an easy life, and eating good food. It is a mistake, I think, to operate early. The President mentions the advantage of early draining the bladder. I have a case that is now of ten years' standing, of tuberculosis of the bladder, and there is no perceptible advancement in the disease. He has not had the bladder drained; he has suffered some pain,

and there has been some contraction, but he is still comfortable. I have now six or eight cases of tuberculosis of the bladder under observation, running five, six or seven years, and in nearly all the cases there is contraction of the bladder and thickening, but they are fairly comfortable. Some of them are mechanics, able to do their work. Therefore I do not believe it is a good plan to hasten to operate in these cases, particularly where a man is obliged to earn his livelihood. I saw a case this afternoon in which there has been tuberculosis of the bladder for six or seven years. We did a suprapubic cystotomy on him. In opening the bladder we found that the mucous membrane was absolutely free from tubercular trouble, but the walls of the bladder were three-quarters of an inch thick, infiltrated with tubercle, probably due to infection from the prostate or seminal vesicles.

I wish to show this little instrument that we used this afternoon. It is devised by Dr. Pilcher, the President. It was of immense value in doing suprapubic cystotomy in this case. The bladder was drawn down so low that it was impossible to get any other light in. This is an instrument with an electric bulb, which is passed into the bladder and gives one a chance to retract and illuminate the whole base of the bladder.

Dr. Morton: Mr. President, I can only emphasize the point which Dr. Von Glahn has made in reference to the extreme importance of determining which kidney is diseased, and at the same time the ability of function of the other kidney. As he has already said, the only way to determine that is by catheterization of the ureters. That was very forcibly impressed upon my mind some two or three years ago, when I happened to be interested in a case of tuberculosis of the kidney which was operated on by one of the best-known surgeons of New York; not the Borough of Brooklyn, but the Borough of Manhattan. He did a nephrectomy and removed the kidney, and after that the patient never passed water for fourteen days. At the autopsy it was found that the other kidney was in worse condition than the one which was taken out. The one removed was the kidney by which this man had been eliminating. Of course, if catheterization of the ureters had been done the condition of these kidneys would have been determined, and then a nephrotomy might have been done on this kidney and allowed the man a certain amount of secreting kidney substance.

As to the cystoscope which is best adapted to catheterizing the ureters, there are various cystoscopes in use. I have one here

to-night which is of interest for two reasons; first, because it is one of the earliest, perhaps one of the first made in this country. This is the Otis cystoscope. The pattern is after the Brenner model, and differs in many ways from the Nitze cystoscope. In the first place the window is on the heel, instead of being here in this part (indicating), so when you introduce the instrument into the bladder you look directly down upon the spot you want to see. Your instrument is introduced, the stylet is withdrawn, and the telescope put in, and the tube which conveys the telescope affords an opportunity to irrigate. All you have to do is to withdraw the telescope and allow the fluid to run out—and fill the bladder up again. The great advantage of this instrument over the Nitze or Albarran cystoscopes is that in catheterization the catheter is introduced through the small opening here (indicating) and then instead of having to be steered into place by working a screw, you look directly down at the spot and you are able to go directly over the ureter, and if you can see the ureter distinctly it is not difficult to push the catheter into it. It is very difficult to see the ureter with it. The field of vision is only one-third as large as the Nitze cystoscope, which is an objection to its use, and I am afraid the difficulty in finding the ureter is going to operate against its use, although certainly it is a very practical instrument if one could only see the ureters. There is one suggestion which has occurred to me in thinking of this subject of catheterization of the ureters, and that is if one could administer a few doses of methyl blue a few days before catheterizing the ureters you might be able to see a few drops of blue-colored urine oozing out from the ureters.

In reference to Dr. Fraser's remarks, he has called attention to the importance of excluding tuberculosis of the bladder before using any instrument. We now at the Polhemus Clinic make it a point to examine the vesicles and prostate first before introducing any instrument into the bladder, if there is any reason to suspect tuberculosis, because if an instrument is introduced into a bladder which is the seat of tubercular infection, very shortly reaction will take place and the patient is laid up for several days, whereas the prostate, epididymis and vesicles almost always show changes if the bladder is affected, unless the infection is primary. If it is secondary, the prostate and vesicles are always affected first.

In regard to Dr. Brostow's remarks: He related a case of double infection of the testicles. I would like to say that the

point I endeavored to make in my paper was that where the epididymis alone was affected it was very undesirable to castrate, but was better to do a more conservative operation and curette out the nodules. If the testicle is infected, then it must be removed, but if we see it early enough, we can curette out the nodules and in that way leave the testicle in the scrotum.

CORRESPONDENCE.

TOTAL ANESTHESIA OF SKIN FROM COCAIN TOPICALLY APPLIED.

To the Editor of the BROOKLYN MEDICAL JOURNAL:

Judging from all my reading on the subject, and from conversations with very many medical friends, I am satisfied that it is the common belief among physicians that cocain has little or no anesthetic properties or powers when applied topically to the skin, and that in order to produce loss of sensation, except on mucous surfaces, it must be introduced into the subcutaneous tissues hypodermically. Of late I have done some experimentation in this regard, and find the theory and belief entirely fallacious, and that complete local cutaneous anesthesia can be obtained from cocaine when properly applied.

The two considerations to be strictly adhered to are: First, use a freshly made solution of not less than 40 per cent.; second, apply for a proper length of time, *viz.*, not less than one hour, and, better, for one and one-half hours.

Not to mention other cases in my practise, I will illustrate by my own personal experience. Having a desire to prevent further attacks of balanitis, from which I had suffered for some years, I decided to circumscise myself, which I recently did under the influence of cocain, topically applied. I slit up the vesical mucous membrane over the glans as far back as the cervix, and then circumcised myself completely, and introduced four stitches, all absolutely painless. There were no constitutional effects from the cocain, nor will there be in other cases unless there be an abrasion. The wound healed by primary union, and there were no bad symptoms of any kind.

The mode of preparation was as follows: The parts were

thoroughly cleansed of all sebaceous and oily matter, and then well dried and made aseptic, then the solution of cocain, 40 per cent. strong, was applied over and widely adjacent to the line of incision by means of a piece of borated absorbent cotton saturated in the cocain solution for twenty minutes, then the parts were allowed to dry for ten minutes and the cocain reapplied as before, and repeated thus for from one to one and one-half hours. Any ordinary skin may be cut through by following the above directions, without pain. The great point is to use plenty of time, as it takes much longer for the nerve bulbs of the skin to be made numb than those on a mucous surface.

If these suggestions are carefully carried out, you can dispense with all general anesthetics, hypodermic needles, and so on, for minor surgery, and avoid pain of any sort or degree. I have found that the numbness and anesthesia continue in the skin for from four to five hours after the last application of the cocain.

WILLARD P. BEACH, M.D.

128 Cambridge Place, Brooklyn.

VESICULAR MOLE.

To the Editors of the BROOKLYN MEDICAL JOURNAL:

On Wednesday, February 13th, at 7:45 A.M., was called to see Mrs. D., aged 36, native of United States, and married eight months. Her menstruation has always been regular up to four months ago, when it ceased. Until one month after this cessation all was well, when she began to have irregular hemorrhage, this lasting until February 12th, when she experienced severe bearing down pains and increased hemorrhage. She has suffered from dysmenorrhea at times, the pain coming on before and ceasing with the establishment of menstruation. Has always been healthy. Since marriage has suffered from painful coition.

Found the uterus enlarged and the cervix soft and patulous, with dilatation sufficient to allow the passage of two fingers. She was very nervous and would not allow a proper examination; was bleeding considerable, but not enough to alarm me. Temperature $102\frac{4}{5}$, pulse 101: was well nourished and quite strong. Ordered rest and fl. ext. hydrastis, with suitable antipyretic and anodyne. Left her supposing her suffering from threatened abortion, cause unknown. About 11 A.M. her husband called

me, stating that she was bleeding profusely. Upon reaching the patient found that dilatation was sufficient to allow the mass to protrude, while the hemorrhage was great enough to cause me to pack the vagina with cotton tampons wrung out of a solution of creoline 5i to Oii. This stopped the hemorrhage. Left her and returned at 4 P.M., when the people informed me that everything had come away. Temperature $101\frac{3}{5}$, pulse 100.

Upon examination the mass was found to consist of a placenta-like substance, filled with numerous small and large cysts, from the size of a millet seed to a grape, as the accompanying drawing will show. Decided the mass was a vesicular mole, and proceeded as best I could to examine the patient, soon being satisfied that there was more of this material in the uterus. Therefore again tamponed for the bleeding and left her.

At 6 P.M. returned with assistance and placed her under chloroform anesthesia. Found a mass about the size of a small orange in the posterior lower uterine wall, having a tendency to protrude into the vagina, and seemed hard enough to be a fibroid. Above this, in the fundus, found more of the mole; this removed as best I could, with the finger; did not use the curette, as the uterine wall was quite soft and flabby, and the tumor added to the trouble by not allowing me to properly do any work in the body of the uterus.

The cavity measured about six inches. We then irrigated the uterus with a solution of potass. permanganate 1-2,000, and placed her in bed. This stopped the hemorrhage and pain.

From February 14th to my last call, on February 25th, she has had no pain or hemorrhage. For three or four days she passed shreds of necrotic tissue, this afterwards changing to a thick yellow discharge. She also slept well and had a good appetite. Gave her intra-uterine douching for five days; then ordered vaginal douching t.i.d. and kept her bowels regular. Her temperature was as follows: February 14th, $102\frac{3}{5}$, morning; $103\frac{4}{5}$, afternoon; February 15th, $103\frac{4}{5}$, morning; $104\frac{3}{5}$, afternoon; February 16th, $103\frac{3}{5}$, morning; $100\frac{3}{5}$, afternoon; February 17th, $99\frac{1}{5}$; February 18th, 99; February 19th, $99\frac{3}{5}$; February 20th, $101\frac{3}{5}$; February 21st, $100\frac{2}{5}$; February 22d, $98\frac{3}{5}$; February 23d, $98\frac{3}{5}$; February 24th, $98\frac{3}{5}$; February 25th, $97\frac{4}{5}$.

On February 19th made a bi-manual examination and found a cellulitic mass extending posteriorly and upward into the left broad ligament, pushing the uterus downward and to one side.

409 Clinton St.

FREDERICK D. CRAWFORD, M.D.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Regular Meeting, May 21st, 1901.

The president, William Browning, in the chair.

There were about one hundred members present.

The minutes of the previous meeting were read and approved.

REPORT OF COUNCIL.

The council reported favorably upon the following applicants for membership:

Henry F. Bell, L. I. C. H., 1898.

Mary L. H. Arnold Snow, Cooper College of Medicine, California, 1897.

William Benton, P. and S., N. Y., 1895.

Frederick A. Cook, Univ. of N. Y., 1890.

Jas. Pullman, Yale, 1899.

Albert L. Clark, Bell., 1878.

Ver Nooy W. Weed, P. and S., N. Y., 1900.

Alex. Gilligan, L. I. C. H., 1899.

Thos. S. Patterson, L. I. C. H., 1890.

Thos. S. Segelcke, L. I. C. H., 1898.

R. L. Shields, L. I. C. H., 1890.

J. H. McCabe, L. I. C. H., 1890.

Frederick D. Crawford, L. I. C. H., 1898.

APPLICATIONS FOR MEMBERSHIP.

Maud Miller, 130 Milton street, Woman's Med. Coll., N. Y. Inf., 1899.

J. L. Rathbun, 197 So. 9th street, L. I. C. H., 1899.

Geo. H. Cruikshank, 206 So. Oxford street, L. I. C. H., 1899.

Eugene La Forrest Swan, 622 Carlton avenue, L.I.C.H., 1898.

Frank J. Duffy, 148 Bay 16th street, Bath Beach, L. I. C. H., 1896. Proposed by Membership Committee.

Jno. J. Ashley, 956 Greene Avenue., Univ. City of N. Y., 1884. Proposed by H. P. deForest, G. W. Colby.

Zohlass K. Theodoran, 167 Stuyvesant avenue, Univ. City of New York, 1880. Proposed by H. P. de Forest, Geo. W. Colby.

FOR CORRESPONDING MEMBERSHIP.

(Approved by Council.)

- Frank J. Davey, 206 West 105th street, Manhattan.
 Martin W. Curran, 154 East 72nd street, Manhattan.
 Geo. Andrews Cook, Montague, Franklin Co., Mass., L. I. C. H., 1891.
 Chas. A. Byrne, Hatfield, Mass., L. I. C. H., 1894.
 Frank Parsons Norbury, 420 W. State street, Jacksonville, Ill. L. I. C. H., 1888.
 Jno. A. Lyons, 4118 State street, Chicago, Ill., L. I. C. H., 1889.
 Augustus Marable, St. Joseph, La.; Univ. of Vermont, 1895, L. I. C. H., 1897.
 Geo. F. Howden, Botwoodville, Newfoundland, L. I. C. H., 1895.
 Otto John Muller, 2937 Clay street, San Francisco, Cal., L. I. C. H., 1887; N. Y. Polyclinic, 1889.
 Robt. M. Langdon, Closter, N. J., L. I. C. H., 1898.

ELECTION OF MEMBERS.

The following having been duly proposed and accepted by the council, were declared by the president elected to membership:

CORRESPONDING MEMBERS.

- Louis F. Joy, L. I. C. H., 1897, Fulton, N. Y.
 F. Madden, L. I. C. H., 1879, Plattsburgh, N. Y.
 Frank Davey, L. I. C. H., 1899, Manhattan.
 Oliver C. E. Smith, L. I. C. H., 1883, Hartford, Conn.

ACTIVE MEMBERS.

- Warren L. Duffield, L. I. C. H., 1898.
 Merritt F. DeLorme, L. I. C. H., 1900.
 George J. Wardenburg, P. and S., N. Y., 1896.
 William Henry Taylor, L. I. C. H., 1898.
 Gustav Liebermann, N. Y. Univ., 1887.
 E. W. Vietor, Univ. State of N. Y., 1875.
 A. M. Gillen, L. I. C. H., 1897.
 August Hoerle, P. and S., N. Y., 1898.

John A. Shields, P. and S., N. Y., 1898.

Chas. A. Bailey, L. I. C. H., 1898.

John J. Collins, P. and S., N. Y., 1898.

F. P. Jenks, L. I. C. H., 1895.

OBITUARY.

The president announced the death, on April 24th, 1901, of Dr. Richard Carson Baker, formerly a member of this society.

SCIENTIFIC BUSINESS.

A series of Five Minute Papers on practical clinical points:

1. "Muscular Asthenopia." By H. N. Hoople.
2. "An Aseptic Uterine Dilator." By C. J. Search.
3. "On Blistering in Certain Abdominal Disorders." By C. F. McGuire.
4. "Some Points on Etopic Gestation." By C. H. Goodrich.
5. "Some Lantern Slides of Our New Health Resort, Hawaii." By T. C. Craig.
6. The Interdental Splint for Fractures of the Jaw." By J. W. Russell.
7. "A Successful Device in the Treatment of Varicose Ulcer." By E. P. Hickok.
8. "A New Procedure for the Treatment of Umbilical Hernia." By H. P. Delatour (read by C. H. Goodrich).

The president announced that the Section on Laryngology, Rhinology, and Otology would meet on Saturday evening, May 25th (instead of Thursday, May 23rd).

Dr. Taylor, of Sag Harbor, representing the Associated Physicians of Long Island, referred to the arrangements which had been made for their meeting at Sag Harbor on Saturday, June 15th, and stated that the original plan for the members from Brooklyn to go down on the boat on the afternoon of Friday, the 14th of June, so as to spend the entire day in Sag Harbor, and be entertained by its citizens, had been changed, owing to a change in the schedule of the boat, and that members from Brooklyn would either have to go by the regular train on Friday afternoon, and remain over night in Sag Harbor, or go by special train leaving Brooklyn Saturday morning, reaching Sag Harbor in time for the scientific session in the afternoon. Dr. Taylor requested the members from Kings to notify him as to which

train they would take, so that the committee could perfect their arrangements.

UNFINISHED BUSINESS.

The secretary announced that the council had made a satisfactory arrangement for the prosecution of illegal practitioners, and urged members to bring all instances of that character to the attention of the secretary.

A communication was presented from the Brooklyn Children's Aid Society, announcing the opening of the Seaside Home for Sick Children, at Coney Island, on June 24th, and that application for admission could be made at any time after June 17th, to the society's offices.

There being no further business, on motion adjourned.

DAVID MYERLE,
Secretary.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

SECTION ON MATERIA MEDICA, THERAPEUTICS AND PHARMACOLOGY.

Stated Meeting, Tuesday, January 8, 1901.

HYDROTHERAPY, IN ITS PHYSIOLOGICAL AND CLINICAL ASPECTS.

By Simon Baruch, M.D., New York.

Dr. Baruch opened his paper with the statement that the estimate of hydrotherapy by medical men has risen and fallen with the ascendancy and decadence of enlightenment among them; a rather startling fact, which he proved by citing the most eminent men in medical history as supporters and warm advocates of water in disease, from Hippocrates to the present time. During the past quarter of a century, in which the average knowledge of medical men has reached its climax, we find hydrotherapy appreciated more than ever in medical history, as evidenced by the fact that the leading teachers of medicine advocate its application more frequently.

The modern hydrotherapist does not, like the hydropath of old, regard water as a universal panacea, but insists only upon

its application with the same judgment with which drugs and other remedial agents are prescribed.

Dr. Baruch inveighed against the prescription of baths, douches and packs, without stating temperature, duration and pressure, regarding the practice as being quite as reprehensible as would be the directing a patient to obtain quinine, iron or calomel from the druggist without exactly stating the dose, time of administration, etc.

Precision in prescribing water is the more imperative because it is the most flexible agent, readily obtainable in solid, liquid and vaporized form.

Every one is familiar with the typical properties of water, but very few appreciate its action in health and disease and yet the latter is based on exact physiological data. Hydrotherapy is the application of heat and cold, through the medium of water, which stimulate when mild and depress or destroy when intense. Cold, for instance, stimulates when briefly applied, as in syncope, and causes frostbite when of long duration. Medical men have long been taught that cold water shocks, and yet they apply it for reviving an atelectic infant. If the latter were retained in cold water instead of being briefly plunged into it, life would indeed be jeopardized by shock, but this would be as injudicious a use of it as a toxic dose of strychnine would be. Cold water warms, warm water cools, said Hippocrates, and he was right; but he meant when skilfully used.

Dr. Baruch then referred to three factors in making the external application of water, temperature, duration, and pressure, which afford great latitude in treatment, when utilized in connection with the various procedures of ablutions, full baths, hip baths, douches, etc.

He then dwelt upon experiments showing the physiological basis of hydrotherapy, and showed how the circulation, respiration, tissue change and excretion are powerfully influenced by cold and heat. He insisted with some warmth, upon the fallacious idea that cold hydropathic procedures are chiefly intended for temperature reduction, an error which has done much to estrange medical men. The fear of shock has frightened us, said he, and not without reason. So long as we believed that cold water was used in fevers as an antithermic agent, so long as we lowered the temperature of a bath if a higher one failed to reduce the body heat, so long was the physician confronted with shock. When the latter occurred he justly desisted from the use of cold water. This was the result of an erroneous concep-

tion. The cold bath, indeed, every cold procedure, has for its chief object the enhancement of the resisting capacity of the patient. In acute disease this is accomplished by several channels. The well known contraction of the cutaneous vessels by cold, their subsequent tonic dilatation under reaction, enhances the elastic propulsive power of the vessel walls and this relieves the over-worked heart. Heart failure is not due so much to hyperpyrexia as to toxemia, and the latter is counteracted by the stimulating, refreshing effect of cold to the cutaneous vessels and nerves, which is conveyed to the central agent, whose integrity has been jeopardized by fever. Thus hypostatic congestions are prevented, and other lethal complications (as nephritis, diarrhea, perforation, and embolism) are avoided.

Second. The refreshing effect upon the sensory cutaneous terminals by cold applications, be they ablutions, sheet baths, ice towel rubs, or true baths, when not too cold nor prolonged, so as to cause chattering of the teeth, is conveyed rapidly to the central nervous system. The refreshing effect was aptly compared by the speaker to the effect of a cool summer shower upon parched vegetation; as the latter revives, so does the human organism, depressed by toxemia, revive after a cold bath. The latter being repeated every three or four hours, the vivifying effect is maintained. Every function feels the impetus of this renewal of life. Thus the patient suffering from infectious fever is carried through the toxic period of the disease, while hydrotherapy aids in maintaining his resisting power.

Dr. Baruch summarized the clinical rules of guidance for the application of cold water in acute disease by stating that no cold application should be made without friction, that friction during the bath prevents chilling and consequent need of friction after the bath; the patient's complaint of chilliness does not induce him to stop the bath unless chattering of the teeth and cyanosis confirm his statement. Dr. Baruch advised against the practice of raising the temperature of a bath because of chilliness, preferring a more brief application of the same or a lower temperature with more active friction. He inveighed against the ice-coil cold, and bathing with a damp sponge, as relics of the erroneous antithermic conception of cold water. Reaction in accordance with the patient's condition should be the chief aim always. Experience, which teaches all else at the bedside, must be the teacher here also, to indicate the amount of reaction desired and obtained.

In chronic diseases, the effect of cold water upon the cutaneous sensory filaments and upon the cutaneous arterioles again

plays the most important rôle. The inspiration is deepened by reflex effect upon the respiratory center, cardiac action is improved by increased resistance in the peripheral arterioles, the cutaneous vessels are dilated in tonic fashion, hemoglobin is increased, more blood cells are driven into the cutaneous vessels, and therefore also through the lungs. Hence oxygenation is increased by cold procedures far more effectively and rapidly than by iron.

The neuro-vascular training resulting from daily cold water procedures is evident even in healthy individuals. Dr. Baruch next dwelt upon the prognosis of chronic disease, insisting that it would be greatly improved by the methodical application of natural agencies, which must be utilized as in acute disease, to enhance the resisting capacity of the patient.

Those agents, which in health maintain life, offer the best means for the restoration of health. Removal from unfavorable environment, the furnishing of pure air, proper food, rest, and exercise, with the external and internal use of water, are all important therapeutic agents, but the latter is paramount.

To illustrate this somewhat startling proposition, Dr. Baruch cited phthisis, diabetes, hemasthenia, and other diseases, dwelling upon the methods and procedures adapted to each disease, and concluded with an appeal for the better instruction in the subject of hydrotherapy in the medical schools and hospitals and the avoidance of masseurs and bath nurses. (The portion of his paper relating to hydrotherapy in chronic disease will be found complete among the original articles.)

THE BROOKLYN SURGICAL SOCIETY.

JAMES P. WARBASSE, M.D., *Editor*.

Regular Meeting, April 5, 1901.

The President, Dr. Walter C. Wood, in the Chair.

COMPOUND COMMINUTED FRACTURE OF THE LOWER END OF THE FEMUR INVOLVING THE KNEE-JOINT. RECOVERY WITH USEFUL JOINT.

DR. A. T. BRISTOW presented a patient who had fallen twenty-eight feet and landed on the right knee. He came to the speaker's service in the Long Island College Hospital the same day with

an open wound on the anterior surface of the knee, which communicated with the joint. There was evidently a separation of both condyles one from another, and a separation of the condyles from the shaft of the femur; and it was evidently a grave injury, without taking into consideration the fact that the joint was opened and there had been more or less dirt ground into the superficial tissues. The patient was sent to the operating room at once and the structures carefully examined and as there was not a great deal of injury to the soft parts, it was determined to make an attempt to save the leg. The speaker's colleague, Dr. Campbell, and himself both wore rubber gloves. No one connected with the operation was allowed to touch the instruments or approach the operating field who did not wear rubber gloves, and nothing went into the joint that had not been boiled.

The wound into the joint with all lacerated and dirty tissue was excised until in place of tissues which were filled with grit and dirt, there was a clean, incised wound. The joint was then explored with the finger, and it was found that the external condyle was comminuted and not only the condyle separated from the shaft and from the other condyle, but there were two or three other fragments; also a small fragment split off from the patella. Moreover, when the finger was passed downward in the direction of the shaft of the bone above the condyles it was found that the bone was absolutely pulverized at that point. Free incisions were then made, one on each side of the joint, which opened the joint freely, and blood in abundance was washed out. The smaller fragments which were loose or merely attached to the other fragments by small pieces of fibers of tissue were removed with the portion of the patella which was free in the joint. Three drainage tubes were then introduced so as to give abundant exit to fluid accumulations. The joint was then thoroughly washed out with a gallon of hot salt solution, and the limb then put in the position which we should have on an inclined plane. With a finger in the upper wound the fragments were reduced and adjusted with the upper end of the femur, leaving some of the pulverized fragments within.

The whole limb was then put in plaster by Dr. Campbell, leaving a space for the drainage tubes to come out, and thereafter a proper aseptic dressing applied, the limb bandaged and the patient returned to bed.

The subsequent course of the case was a surprise to the speaker. He had expected to have to amputate at the middle

third of the thigh, and every preparation was made the moment the temperature showed any signs of ascending, or the slightest evidence of sepsis, to amputate. The temperature never rose above 99 and most of the time was normal. The drainage tubes were removed on the third day, and the joint washed with a sterile salt solution, the dressings put back and the bandages returned. The incisions closed very promptly, and he now has a leg which is certainly better than an artificial leg, in my judgment. It is true there is shortening for there was certainly that much bone lost; but there is motion in the joint. That the joint is in a pretty good condition, his presence here to-night, after climbing five flights of stairs, is sufficient evidence.

DEPRESSED FRACTURE OF THE SKULL WITH HEMIPLEGIA.

DR. A. H. BOGART presented a patient who had been admitted to the County Hospital in the service of Dr. J. B. Bogart, September 8th, with a history of having been struck over the head with a bed slat. When seen at 7 o'clock in the morning in the receiving ward the patient was in a stupor but would answer questions intelligently after being aroused. The grip of the left hand was decidedly weaker than the right; he could move both arms and legs; there was, however, slight paralysis of the left arm; no facial paralysis; pupils were equal and reacted to light; temperature 99 by the mouth; pulse 80; full and strong; no bleeding from the nose or ears. Examination of the scalp showed a large hematoma on the right side, but no open wound other than a slight cut in the frontal region. By noon complete paralysis of the left arm had developed, patient having vomited in the meantime. The speaker saw him just before 2 o'clock, and at that time the paralysis in the arm was complete; he was unable to lift it at all. He was in a stupor, but could still be aroused by shaking and be made to answer some questions. There was no paralysis of the leg. There was a large hematoma on the side of the head covering the motor area, but on account of the amount of blood effusion it was impossible to make out a fracture by palpation. It was decided on account of the marked pressure symptoms that it would be necessary to operate. The speaker therefore made a curved incision and found a tongue shaped depressed fracture of the skull with the apex upward toward the median line and directly over the motor area. It was about an inch and a quarter wide at its upper portion and extended downward toward the

base of the skull, the lower end of it not being exposed. This fracture was depressed to the extent of about a quarter of an inch. Another fracture extended from the apex of this one directly across the skull. How far that went he did not know, as he did not attempt to follow it. There seemed to be no other points of depression. After elevating the depression there was a good deal of oozing from the lines of the fracture evidently coming from the diploë and probably some of it from intra-cranial hemorrhage. The wound was sutured, and a drainage tube inserted. On the following day the paralysis had extended to the leg of the same side. There was never any rise of temperature or other evidence of infection, and the patient's general condition was good after the operation. The coma gradually cleared up within three or four days, and on the 20th of the month the patient began to move his leg slightly. The paralysis began to recover first in the leg; on the 21st he began to move the arm, and since that time has gradually improved in both the leg and arm. About the 26th he developed internal strabismus in the eye of the right side and he has that still, but the paralysis of the arm and leg has practically cleared up, while the grip is a little weaker than normal.

TUBERCULAR DISEASE OF THE KNEE-JOINT.

DR. A. H. BOGART presented a case of tubercular disease of the knee-joint which came under his observation in the service of Dr. J. B. Bogart at the Methodist Episcopal Hospital about two years ago. He had been suffering with trouble in the knee-joint for some time before he came there. Upon admission the knee was in a state of active inflammation, somewhat flexed, quite tender and considerably swollen. It seemed a proper case for conservative treatment, and that was adopted, fixation by means of plaster of Paris protection, with a high shoe and crutches. Traction was made on the limb at times together with rest in bed in order to straighten it and relieve the deformity. This treatment was continued until October 24th last. At that time, when one of the casts was removed, it was found that the knee had not improved, but on the contrary had gone on from bad to worse and that the structures of the joint had entirely broken down and a sinus had formed on the outside. Instead of there being marked flexion, as there is in most of these cases, the joint was totally broken down, so that it could be freely moved in almost any direction with very little if any pain, except when carried to the extreme. It

was apparent therefore that no further treatment of that sort would be of value, and a resection, which was done. About an inch was taken off from the head of the tibia and three-quarters of an inch from the femur, it being necessary to take away that much to get rid of the diseased tissue. The medullary cavity of the tibia was also scraped out and this large cavity allowed to fill with blood-clot. The wound was dressed with a Valkman splint. After the operation there was no infection, no rise in temperature and it followed the usual course. A sinus where a drainage-tube was inserted remained for some three or four weeks. The wound has been treated with plaster of Paris dressings ever since that time up to a little over a month ago, when the plaster was removed and the patient allowed to walk without further protection. About one week ago when the speaker saw him, after he had had the plaster off for about a month and a half, he had developed a little flexion. He has no pain or discomfort at present, but this flexion is beginning and it seems proper to apply a plaster case to prevent any increase of that.

Discussion.

DR. W. B. BRINSMADE said that the question arises in these cases of compound fracture of the skull in which portions of bone are removed, what the chances are going to be in the future of adhesions between the dura and the scalp. The question is often asked in testimony in accident cases, and it is a matter of much importance.

DR. J. M. CLAYLAND said that taking off an inch of the upper end of the tibia in a boy of this age would sacrifice the epiphyseal line. Of course there is not very much growth from this epiphyseal line, but it would make a difference when the boy grows older. He thought it a rule that all of these cases flex unless they are kept fixed for a long time.

DR. BOGART added that he was not prepared to state exactly as to just how much he took off the head of the tibia; if, however, he did take off the epiphyseal line the patient was well rid of it, because it was of no value in its diseased condition. About the flexion he agrees with Dr. Clayland and should take means at once to prevent any further flexion.

PRESENTATION OF SPECIMENS, PLEUROLITHS.

DR. J. M. CLAYLAND reported a case which he saw in consultation with Dr. Koehler. The patient was a man about 45 years

of age, previous health good. A little over a year ago he developed a hump under the skin a little below the left nipple. After a month or so this became red and finally opened and discharged pus, and continued to discharge for a year, without any constitutional symptoms until June last, when he developed fever. Upon his return to the city his physician introduced a probe, struck something hard, and asked the speaker to resect the rib. He found that whatever it was that was hard was on the other side of the rib. He removed a piece of the rib and found a cavity lined with calcareous plates covering the costal, the pericardial and pulmonary pleura. He curetted out all he could reach and sooner than resect a number of ribs to reach all of it, he suggested that dilute acids be injected, which he found by experiment dissolved the calculi.

SPINA BIFIDA.

DR. J. M. CLAYLAND reported the case of a child eight weeks old which entered his service at the Brooklyn Hospital with spina bifida. The disease extended from the fifth dorsal vertebra down to the end of the spine. When the child was born there was no skin over the tumor. This, however, cicatrized so that at the time of the operation there was a thin membrane, serous on one side and cicatricial on the other. He dissected this off, saving the serous portion of it, and that part where there were no nerve fibers running into it from the cord he cut away entirely. The fissure was about six inches long and one and one-half inches wide, due to the outward curving of the laminae which should have come together behind to unite, to form the spinal processes. He fractured and bent them in to try to cover over the sac which he had reduced. He then made along each side through the muscular fascia a longitudinal incision, reflected the muscle and fascia over the cord and sewed it, and brought the skin over this and sewed it.

The child died within twenty-four hours. At the autopsy the following was found: Over the fissure in the sacrum there was a tough aponeurosis which filled in the posterior portion of the spinal canal. The cord was very much thinned and dilated in the central portion. The central canal of the cord being quite large from the fifth cervical vertebra downward for three inches; below that there was no dilatation of the central canal. The nerve roots spread out on the inner surface of the sac and extended down and outward. Most of the cord was anterior to the dila-

tion, only a thin portion being posterior. The nerve roots took a normal course. Between the cord and the laminæ there was a deposit of fat and gliomatous matter. The cord above the fifth cervical vertebra was normal. The head was large and contained a large amount of subarachnoid fluid. The whole brain was a thin layer of brain matter on the outside of a big cavity composed of the lateral, third and fourth ventricles. In this case then there was double clubfoot, spina bifida, external and internal hydrocephalus, and syringomyelia.

ECTOPIC GESTATION WITH ACCIDENTAL HEMORRHAGE.

DR. J. M. CLAYLAND reported a case which he saw in consultation with Dr. Herman and sent to St. Mary's Hospital. The patient, aged 35, had had one child five years ago and previous to that, one miscarriage. She last menstruated on June 27th. On August 24th, during intercourse, she suddenly had a pain in the left side which quickly extended across the abdomen, followed by chill, fever, nausea, and prostration. On the 28th of August there was a second child and pain and symptoms of collapse. She entered the hospital on the 30th of August. The uterus was large and there was a slight bloody discharge from it which had a bad odor. Behind the uterus was a mass which was movable.

On the 1st of September the speaker curetted the uterus at half past twelve o'clock, and took out the decidual membrane, no fetus being present, and she was returned to her room in good condition. At 2 o'clock the same day the house surgeon noticed that she was in bad condition, with evidence of shock. Her pulse became rapid and then imperceptible; her breathing was rapid and sighing and she was pale and fainting. It was evident that bleeding was going on into the peritoneal cavity. At 5 o'clock the speaker opened the abdomen, which was found full of blood clots. The left tube which was one and one-half inches in diameter, was removed, the ovary being left. She received rectal, submammary and venous injections of salt solutions; the peritoneal cavity was washed out with salt solution and sewed up tight with silkworm-gut sutures, leaving the cavity full of salt solution. She was returned to her room with an almost imperceptible pulse. At 9 o'clock that night it was 160, respirations 60, and temperature 101. She had a temperature ranging from normal to 102 for a few days. At the end of a week's time her pulse

had come down to 100. From that time on she has made an uninterrupted recovery, being discharged in three weeks.

A NOTE ON THE SURGERY OF THE INTERNAL SAPHENOUS VEIN.

DR. WILLIAM FRANCIS CAMPBELL presented a diagram, drawn from a dissection of the groin region, and said that the simple procedure of ligating the internal saphenous vein high up in Scarpa's space for varicosities occurring along the course of this vein, has become widely popular during the last few years. Its popularity is undoubtedly due to its simplicity, and as a rule its efficacy. The operation is easily performed by means of cocain anesthesia, the vein is readily accessible, and is usually found through an incision of an inch or an inch and one-half in length. The fact, however, that occasionally the varicosed condition did not improve after this procedure, and again the annoying and tedious delays which the speaker had experienced and witnessed in others in exposing this vein for ligature led him to investigate the anatomy of the internal saphenous vein with two objects in view: First, to discover the possible sources of error which might occur in practising the operation as now taught. Second, to devise if possible some guide or landmark would fix a point at which the vein could be exposed and ligated without possibility of error.

The experiments were performed on fifty subjects, and in detail were as follows: First, the operation as now performed was done on each subject as a preliminary procedure. Second, the skin was reflected back, the vein and its branches exposed, and observation made upon the result of the preliminary ligation. Third, the point at which the vein ought to be ligated was fixed, and its relation to surrounding landmarks observed.

The results obtained were rather interesting. First, regarding the preliminary ligature as usually performed. The author succeeded in ligating the vein at the proper point in 80 per cent. of the ligations, the other 20 per cent. were distributed between the internal femoral cutaneous, the external femoral cutaneous, the internal saphenous vein below these two branches, and in one instance there was a double internal saphenous vein, one lying above the other and forming the main trunk about one-quarter-inch below the saphenous opening. The greatest source of error lies in the internal femoral cutaneous. Fifteen per cent. of errors were found here. As McClelland observes: "Many of the tributaries of the internal saphenous are as large as the vein itself,

especially on the inner side of the thigh." In three per cent. of the cases the vein was ligated below the femoral branches. The external femoral cutaneous was ligated once, and the anterior portion of the internal saphenous once when it occurred as a double vein, one portion lying above the other.

In observing the relation of the line of incision to these errors, it was found that the usual incision is too low down and too far toward the inner aspect of the thigh. Dr. Campbell's preliminary incisions averaged an inch too low and too far in. It will be readily seen, he said, that the proper point at which to ligate is that portion of the vein which lies between its last tributary and the saphenous opening.

This space is about three-quarters of an inch in length, varying in different subjects. A circle about the size of a penny ought to fix the limits within which we can expose this portion of the vessel.

The author found that the end of a line three and one-half inches long projected from the spine of the pubes at right angles to Poupart's ligament would always fall within this circle. The utility of this line has been demonstrated by Dr. Bristow and himself on a number of cases occurring in their services during the past six months. It has proved efficient in every case. He recommended the following procedure: Find the spine of the pubes. From this point project a line three and one-half inches long at right angles to Poupart's ligament. The end of this line marks the point for the center of the incision, which should be about one inch long and parallel with the fold of the groin. In retracting the edges of the incision, retract the upper edge so as to ligate as near the saphenous opening as possible.

HISTORICAL DEPARTMENT.

REPORT OF HISTORICAL COMMITTEE.

During the year 1900 we have been called upon to record the names of those who not alone have been active as members of this society, but who have added honor to the profession of medicine in this city; their life work has been duly recorded.

Your committee have also during the year, through the medium of the *BROOKLYN MEDICAL JOURNAL*, presented portraits



CORYDON LA FORD, A.M., M.D., LL.D.



CORYDON LA FORD, A.M., M.D., LL.D.,
PROFESSOR OF ANATOMY.

of physicians and surgeons who have either been born on Long Island or practised the healing art among us.

Those who have died as active members are as follows:

Date of Mem.

Ex.-Presidents

1865-1900—Alexander Johnson Chalmers Skene, M.D., LL.D.,
July 4, 1900.

1874-1900—Julius Charles Rappold, M.D., August 3, 1900.

1891-1900—Frank Stephen Milbury, D.D.S., M.D., August
28, 1900.

1883-1900—William Webb Browning, A.M., LL.B., M.D.,
October 3, 1900.

1899-1901—Guthrie Rider Winder, M.D., January 25, 1901.

1891-1901—James Byers Warden, M.D., February 22, 1901.

1898-1901—John Barnard Busteed, M.D., March 11, 1901.

1859-1901—John Henry Hobart Burge, M. D., March 24,
1901.

Corresponding members: 1891-1900.

1875-1891—Landon Carter Gray, A.M., M.D., May 8, 1900.

Retired members:

1859-1899—Frederick Cornell DeMund, A.B., M.D., Novem-
ber 22, 1900.

1870-1896—Stephen Chandler Griggs, M.D., February 1, 1901.

Non-active members:

1893-1894—William B. Waterman, M.D., August 20, 1900.

1859-1884—Edward Robinson Squibb, M.D., October 25, 1900.

WILLIAM SCHROEDER, M.D.,

Secretary of the Historical Committee.

April, 16, 1901.

CORYDON LA FORD, A.M., M.D., LL.D.

To be a teacher in any department of learning requires skill and adaptation for the work, and to be acknowledged as the greatest teacher in any line of study one must be fitted by nature and education for his chosen specialty. Every student of medicine who received his instructions in anatomy through the teaching of Professor Ford will admit that he, above all others, was a master in his department. In the city of Brooklyn about eight hundred physicians who have practiced medicine here, have been graduates of the Long Island College Hospital. Of these, six hundred are still in active practice, and of these about four

hundred are active members of the Medical Society, County of Kings, the greater part of which have received their instructions on anatomy at the hands of Professor Ford. During his professional life he gave in different medical colleges one hundred and nine courses of lectures on anatomy. This will give the reader some conception of the amount of labor performed in this direction.

Professor Corydon L. Ford was born in Lexington, Greene County, New York, August 29, 1813, and died at Ann Arbor, Michigan, April 14, 1894. He was educated in the public schools of Lexington and Canandaigua Academy. His medical education was received in the Geneva Medical College, where he graduated M.D. in 1842. The degree of A.M. he received from Middlebury College in 1859, and LL.D. from the University of Michigan in 1881. He made his home in Medina, Orleans County, N. Y., from 1842-53, where for a short time he practised medicine, and from 1854 to '94 his home was at Ann Arbor.

From 1842-48, Demonstrator of Anatomy, Geneva Medical College.

From 1849-61, Professor Anatomy and Physiology, Berkshire Medical Institution.

From 1854-60, Professor Anatomy, University of Michigan.

From 1860-94, Professor Anatomy and Physiology, University of Michigan.

From 1867-69, Professor General and Descriptive Anatomy, L. I. C. H.

From 1869-85, Professor Anatomy, L. I. C. H.

From 1885-94, Emeritus Professor Anatomy, L. I. C. H.

He published three volumes, 8vo., as follows:

"Questions on Anatomy, Histology, and Physiology."

"Questions on Structure and Development of the Teeth."

"Syllabus of Lectures on Odontology, Human and Comparative."

He was an active member of the American Medical Association.

In 1865 he married Mrs. Messer, of Pittsfield, Mass.

SAMUEL GLASGOW ARMOR, A.M., M.D., LL.D.

To possess the faculty of imparting to others a clear conception of the subject under consideration, and to present it in such



SAMUEL GLASGOW ARMOR, M.D., LL.D.

a way that it will make an impression upon the mind of the student which he can recall with ease at any time, thereby better fitting him for his life work, would indicate that the teacher was in his natural element, as nature and education intended him to be. Professor Armor was in possession of these qualifications, and recognized as one of the foremost teachers of his time.

Born in Washington County, Pa., January 29, 1818, and died in Brooklyn, N. Y., October 27, 1885. His father was John Armor, and his mother Matilda Glasgow, both of Pennsylvania. Professor Armor in 1856 married Mary M. Holcomb, of Dayton, Ohio, who died in 1878; in 1883 he was united in marriage with Mrs. Yorke, of Cincinnati, Ohio.

He was educated at Franklyn College, Ohio, receiving the degree of A.M. in 1840, and LL.D. in 1872.

In 1841, at Millersburg, Ohio, under the preceptorship of James E. Ervine, M.D., he began the study of medicine, and matriculated with Kemper Medical College, graduating M.D. in 1844. Dr. Armor practised medicine at Rockford, Ill., 1844-47; Chicago, 1847-48; Keokuk, Iowa, 1848-51; Cleveland, Ohio, 1851-56; St. Louis, Mo., 1857-61; Detroit, 1861-66, and Brooklyn, N. Y., 1866-85.

He was a member of the Medical Society, County of Kings, 1870-85; censor 1872-74; Long Island College Hospital Journal Association President, 1872-75; honorary member of the New York Academy of Anthropology, visiting physician L. I. College Hospital and consulting physician to St. John's Hospital; 1847. Lecturer of Physiology, Rush Medical College; 1848, Professor Pathology, Medical Department, Iowa University; 1851-53, Professor Natural Sciences, Cleveland University; 1854-56, Professor Practice of Medicine and Pathology, Medical College of Ohio; 1857-61, Professor Pathology and Clinical Medicine, Missouri Medical College; 1866-69, Professor Therapeutics and Materia Medica and General Pathology, L. I. C. H.; 1869-85, Professor Practice of Medicine, L. I. C. H.; 1873-85, Dean of the Faculty, L. I. C. H.

His contributions to medical literature:

1853—"Zymotic Theory of the Essential Fevers," prize essay.

1870—"Address to Graduates," L. I. C. H.

1871—"Catarrhal and Croupous Inflammations of Mucous Membranes."

1877—"Treatment of Asthma."

1878—"Symptoms and Signs of Constitutional Phthisis."

1883—"Thoracentesis."

1883—"Functional and Inflammatory Diseases of the Stomach," "Pepper's System of Medicine."

In 1857 the Cincinnati *Lancet* had this to say in reference to Professor Armor:

"We have heard many lecturers, both in this country and in Europe, but we have heard but few who could surpass Professor Armor in riveting the attention of a medical class."

WILLIAM SCHROEDER, M.D.,
Secretary of the Historical Committee.

LANDON CARTER GRAY, A.M., M.D.

BY GEORGE RYERSON FOWLER, M.D.

"For these friends of ours who have gone before, there is now no more toil; they start from their slumbers no more at the cry of pain; they sally forth no more into the storms; they ride no longer over the lonely roads that knew them so well; their wheels are rusting on their axles or rolling with other burdens; their watchful eyes are closed to all the sorrows they lived to soothe. * * * * * But they have left behind them that loving remembrance which is better than fame, and if their epitaphs are chiselled briefly in stone, they are written at full length on living tablets in a thousand homes to which they carried their ever-welcome aid and sympathy."—*Oliver Wendell Holmes.*

It was the privilege of the writer to know Landon Carter Gray in his early student days at Bellevue, when he came from the law school, at which he was then a student, to take the lectures of Professor Doremus upon chemistry, toxicology, and medical jurisprudence. It was this association that led him to forsake the law and take up the study of medicine, as a private student of Professor James R. Wood.

He was well equipped for the study of either profession. His father was a lawyer of pronounced ability, who was descended from the Carters of Virginia, one of the oldest and best known of the early colonial families. His mother was a descendant of the Swedish Consul Jans, the progenitor of the famous Anneke Jans heirs. His early education was received at the home of his boyhood days upon picturesque Staten Island, after which he became a student at Columbia College. Almost at the very commencement of his student life, however, he became heavily handi-

capped by an affection of the eyes, which for a time threatened to seriously interfere with his career. With progressively failing vision, which in after years culminated practically in the loss of the use of one eye, he was compelled to abandon his studies in his junior year. He then went abroad, and, after a period of rest, during which his vision had so far improved as to warrant him in renewing his studies, he entered the University of Heidelberg. After three years of hard work he returned to his native land and began the study of law. His interest in medical science was awakened by his attendance upon the lectures of Professor Doremus at the Bellevue Hospital Medical College, in which institution he matriculated, graduating in 1873. After a short sojourn in New York City he removed to Brooklyn and took up the special study of neurology, a branch in which he was destined to become widely known in a remarkably short time, as a most progressive and successful practitioner. Fortunately, he was endowed with a most indomitable will, and this, together with the thoroughness of his early training, proved of the greatest service to him at this period of his life. In his early struggles to rise in a special line of work, the importance of which was not at that time appreciated at its full worth, he was thrown upon his own resources by his father's loss of fortune. Nothing daunted, he continued with a perseverance characteristic of the man, to pursue his studies in his chosen field. Then came the loss of his only child, and it was one of the sorrows of his life that he was thereafter to remain childless.

Misfortune and adversity proved, however, but additional spurs to his active and ambitious nature. He was one of the earlier members of the Anatomical and Surgical Society, was appointed Adjunct Physician to and Lecturer on Anatomy, and Physiology of the Nervous System in the Long Island College Hospital, a position he finally relinquished to become Professor of Mental and Nervous Diseases at the New York Polyclinic, where he remained until his death. He was one of the founders of the Faculty of St. Mary's Hospital, in this city, where, for many years, he was at the head of the Department of Neurology.

His reputation as an energetic worker in the field of neurology brought to him fresh honors almost every year. He returned to New York in 1886, where he was gladly welcomed. He now became consulting neurologist to the Hospital for Ruptured and Crippled, and was honored in succession with the presidency of

the American Neurological Association, of the New York Neurological Society, of the Neurological Section of the New York Academy of Medicine, of the Society of Medical Jurisprudence, and of the New York County Medical Society. While President of the American Neurological Association he was active in the organization of the Congress of American Physicians and Surgeons, and held the position of Chairman of the Executive Committee of that body for nine years, or up to the time of his death.

Dr. Gray was the author of a work upon Nervous and Mental Diseases, and also made many valuable contributions to medical literature in the field of neurology and psychiatry. For several years before his death he was aware of the existence of the disease to which he finally succumbed, namely, a chronic nephritis with cardiac complication; but, with an unflagging energy, he pursued his work until within three months of the end.

He was an earnest seeker after truth. It was related to the writer by one who knew him intimately, that, in the later years of his life, and while suffering acutely under the affliction of the loss of a favorite brother, he sought out and submitted himself to the arguments of the most eminent theologians of the day, with the view of availing himself of the consolation of belief in, and hope for, a future state. He was sensitive to a degree, the ties of affection bound him strongly, and the sorrows of affliction bore heavily upon him. Yet, from the earliest days of his student life, when he was threatened with total blindness, through the years of financial adversity following the loss of his father's fortune, during which he, although in no degree legally responsible therefor, nor yet in honor bound, as it is usually regarded so to do, voluntarily assumed and paid no less than thirty thousand dollars of his father's debts from his own earnings—and during the years when he knew that his term of life was short he never ceased to work for the advancement of the profession to which he had dedicated his life.

To those who knew him best he was the most beloved. Those who knew him least recognized his ability. No one who ever knew him, either professionally or otherwise, failed to become impressed with his personality or inspired with his zeal. His opinions were always honestly given, and his advice invariably respected, if not always followed. He was a broad man intellectually, and never permitted his honesty of design or sincerity of purpose, when employed as an expert, to be turned aside by the sophistry of

argument or the promise of reward. He always possessed the respect of lawyers and judges, and quickly won the confidence of juries. No plaintiff litigant was too poor to claim his services if his time permitted, and no defendant rich enough to bias his testimony. He was ever quick, yet fair, in debate, ready in argument, yet conservative; received blows in the intellectual arena manfully; never knew when he was beaten, and consequently never bore malice. His foe of yesterday was his friend of to-day, and of all those who ever knew him there is not one who would not cast the sprig of acacia upon his coffin lid and exclaim, "Alas! my brother!"

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

Dr. James M. Winfield was elected president of the New York Dermatological Society, at the annual meeting.

Passed Assistant Surgeon E. S. Bogert, U. S. N., has been recently commissioned surgeon, the commission dating from December 15, 1900.

Dr. Emelius C. Dudley, of Chicago, an alumnus of Long Island College, and an ex-interne of the College Hospital, has been appointed a member of the Board of Education by Mayor Harrison. His term of service will be two years. Dr. Dudley is chief surgeon at St. Luke's Hospital, and since 1880 has been connected with the Northwestern Medical College.

Dr. Frank J. Fitzgerald announces his removal to 1081 Bergen street.

Dr. Lewis N. Foote has removed to 627 Marcy avenue.

Dr. H. B. Delatour has been elected president, and Dr. H. T. Hotchkiss, secretary, of the St. John's Hospital Staff Association, at the annual meeting in June.

Dr. Thomas F. McCleary sailed for Europe on June 12th.

Dr. Francis C. Vogt was married, April 30th, to Miss Elizabeth R. Atkinson, daughter of James Atkinson, of Springfield, Mass. On May 21st, Dr. Carroll Chase married Miss Charlotte Cushman Morse, daughter of Mrs. Fitz Henry Morse, at Montclair, N. J. Dr. John A. Lee married, May 22d, Miss Penelope Bond, at Chicago, Ill. On June 6th, Dr. Arnold W. Catlin was married to Mrs. Martha M. Nostrand, of Brooklyn.

The convention of the National Association of Military Surgeons was held in St. Paul, May 30th.

The tenth regular meeting of the Associated Physicians of Long Island was held at Sag Harbor, June 15th. The program was: "Treatment of Genu Varum and Genu Valgum," Charles Dwight Napier; discussion opened by Walter Truslow. "Disposal of Sewage," Samuel Hendrickson, Jamaica; discussed by J. Finley Bell. "Respiratory Tuberculosis," Hubert Arrowsmith; discussion by Frank E. West. A special train took the members down in the morning. Quite a party went down the previous afternoon, and in the morning enjoyed a sail around Shelter Island. They were entertained at lunch, and the whole society, with friends, entertained at dinner after the meeting.

It is the purpose of the many friends of the late Dr. A. J. C. Skene to perpetuate his memory by the erection of a suitable monument in some appropriate place in this city. To this end, the committee selected have issued an appeal for subscriptions. It is hoped that a generous response will be made to the treasurer, Dr. Francis H. Stuart, 123 Joralemon street.

A collection of books from the library of the late Dr. Purple has been presented to the society by twelve of its members.

The Seaside Home for Sick Children was opened June 24th. Application may be made any morning at 61 Poplar street, or in the afternoon at 191 Marcy avenue. Any child under seven, who is seriously ill, will be sent immediately, as room is always made for severe cases. No fee is charged for admission.

The New Jersey Grand Council of the Royal Arcanum, at a recent meeting adopted a resolution declaring that "all persons, when ill, who reject, refuse or neglect the aid of medical science, are a very dangerous risk, from an insurance standpoint, and that hereafter they should not be eligible to membership in this order unless agreeing to obtain or submit to such aid when ill, under penalty of forfeiture of insurance." No doubt many other

insurance orders and companies will ultimately follow this example.

It is interesting to note that an American firm, A. A. Marks, was awarded at the Paris Exposition the grand prize for the excellence of their artificial limbs.

The daily press has of late recorded several instances of damage suits brought against certain dermatological institutes as a result of attempts to remedy congenital displacements of features. It should impress upon the public that beauty cannot be bought, and also that implicit confidence should not be placed in "commercial" medical men.

Dr. Charles G. Molin has removed to 184 State Street.

The following have been appointed and confirmed for positions on the staff of Kings County Hospital: Samuel Sherwell, consulting dermatologist; Calvin F. Barber, visiting surgeon; H. A. Alderton, otologist; Jonathan Wright, laryngologist and rhinologist; A. M. Judd, obstetrician; A. C. Brush, neurologist; J. T. Duryea, visiting physician; J. W. Russell, dentist; and W. C. Woolsey, assistant dermatologist; Ernest Palmer, consulting gynecologist; and Charles D. Napier, orthopedic surgeon, previously elected were confirmed.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

INFANT FEEDING IN ITS RELATION TO HEALTH AND DISEASE. By Louis Fischer, M.D. Fifty-two illustrations, with 23 charts and tables. Philadelphia and Chicago: F. A. Davis & Co.; 359 pp., 8vo. Price: Cloth, \$1.50 net.

This book presents to physicians the complex subject of infant feeding in a very thorough manner, but at times in rather an intricate way. The family physician, rusty in his chemical knowledge, will not readily grasp some of the chemical details. Still, he should own the book for the many good things in it. The author urges municipal control over wet-nurse agencies, advises against reliance upon "one cow's milk," points out that in rectal feeding the rectum absorbs and does not digest; hence, all food so used should be peptonized. The value of

malt extracts in connection with starchy foods, the use of glycerine as a sweetening agent, of a saccharated solution of lime instead of lime water, the objections to condensed milk, the too frequent unsatisfactory condition of "laboratory-fed" babies, and are carefully considered. The writer has very much to say upon the subject of cow's milk, as opposed to other artificial foods, and more strongly than in most books points out the value of clean raw milk, and under certain circumstances of fresh whole milk. It is to be regretted that he did not credit Dr. Corson, of Conshokokie, Pa., with the advocacy in this country of whole milk. We know of no book on infant feeding which covers the ground so thoroughly as Dr. Fischer's. The judicial way in which he considers the various modes of feeding shows that he is no hobbyist.

MANUAL OF PRACTICAL HYGIENE, for Students, Physicians and Medical Officers. By Charles Harrington, M.D. Lea Bros. & Co., Philadelphia and New York, pp. 729, 8vo. Price: Cloth, \$4.25 *net*.

This volume treats of foods, air, soil, water, habitations, schools, etc., disposal of sewage and garbage, of disinfectants and disinfection, of quarantine, military, naval, marine, tropical and personal hygiene, of hygiene of occupation, of vital statistics, vaccination and disposal of the dead—a goodly array of topics. As presented, they are too full for ordinary medical students, but of great value to physicians, especially those living in the country and suburban towns, where they will often be called upon to settle hygienic problems. The literary composition is simple and direct. Such terse statements appear as "the perfectly kept house knows no cleaning season," and "to employ the town in manuring the plain would be certain success, for if gold be dung, on the other hand our dung is gold." The book is essentially American: credit, for example, being given to Col. Waring for his practical work in drainage, and to Dr. A. N. Bell for the use of steam heat in the disinfection of infected clothing, baggage, etc. But we regret that no allusion is made as to the daily amount of food per individual, suggested by Prof. Atwater. We cannot agree with the author, that glucose and starch, because they may do harm when components of candy, are not adulterants. The plain language used in showing that the results of experiments upon Alexis St. Martin do not decide by any means the relative digestibility of foods is refreshing. So also are the statements as to the value of the army canteen, of good oleomargarine, of the healthfulness of properly conducted sewage farms. While mosquitoes are credited with the conveyance of some infectious material, slight mention is made of flies as carriers—an omission. The engravings are helpful and good, and the publication of sanitary blanks in connection with the U. S. Quarantine laws very desirable. This manual is an excellent reference book, and its excellence largely depends on the straightforward way in which topics are treated. Any physician who knows about army life, and the failure to teach West Point graduates practical hygiene, will appreciate what the author says as to the importance of line officers understanding the principles of military hygiene.

AN AMERICAN TEXT-BOOK OF PHYSIOLOGY. Edited by William H. Howell, Ph.D., M.D., Professor of Physiology in Johns Hopkins University. Vol. II., royal octavo, pp. 553. Philadelphia and London: W. B. Saunders & Co., 1901

In this volume the physiology of the muscle, nerve, and sense-systems, and the physiology of reproduction and development are considered. The first section, treating of the general physiology of muscle and nerve, by Warren P. Lombard, excellent though it was in the first edition, has been very carefully revised, several paragraphs have been added, and many new facts woven into the text. Of the added paragraphs, those on the spread of electric currents and electrostatic charges and on the relation of the electric phenomenon of nerve to physiologic processes, are worthy of especial mention. In connection with the normal electric reactions in man, the reactions obtained from degenerating and degenerated nerve-muscle are given. Some recently discovered effects of diminished temperature on the irritability of muscle and nerve are mentioned. The paragraph treating of the effects on irritability of various chemic substances has been rewritten and elaborated, as has also that treating of currents of action in nerve. Four figures have been added. On the whole, this section is one of the best in the book; it is concise, accurate, and logical. The subsection on the "Action of Locomotor Mechanisms," by the same author, is not so good; the treatment in it of such subjects as "Walking" and "Running" is too brief for a work of the scope of this one.

The section on the central nervous system, by Henry H. Donaldson, has also been carefully revised, and some of its subdivisions rearranged. The terminology of nerve-elements and their parts, which, as given in the first edition, was somewhat confusing, has been improved. In giving volume relations, round numbers have been wisely used in place of exact calculation results. The subsection on reflex action has been rewritten and improved, and some new figures have been introduced. The manner of treatment of the subject in this section is very different from that followed in most text-books and manuals. After a few introductory remarks, the physiology of the nerve-unit (neuron) is taken up; then the physiology of neuron groups and systems, and, finally the physiology of the nerve system as a whole. This plan is in harmony with the now widely known "neuron theory." The care with which the section has been written is evident in every line of it; and, accepting the plan according to which the subject is treated, it is a masterpiece. The subsection on the sense of vision, by Henry P. Bowditch, is, except for a few verbal changes, an added or altered sentence here and there, and a new figure, the same as that of the first edition. Nor are there any essential changes in the remaining portions of the volume.

Considering now the work as a whole, as a text-book it may be safely recommended to students and practitioners of medicine. For students, however, its value as such is not uniform throughout, the value of the several sections varying in different schools in relation to the pedagogic method of individual teachers, whose classes use it. For example, in some sections methods of experimentation are clearly explained,

whereas in others they are not even mentioned, leaving the student no alternative but to accept the bare statements of the writer. The importance of understanding the methods by means of which what are called facts have been obtained, or exposed statements weighed against one another must be evident to any one, student or teacher, who has wrestled with any problem of physiology, and delved, however partially, into its literature.

JOHN C. CARDWELL.

PULMONARY CONSUMPTION, PNEUMONIA, AND ALLIED DISEASES OF THE LUNGS; THEIR ETIOLOGY, PATHOLOGY AND TREATMENT, WITH A CHAPTER ON PHYSICAL DIAGNOSIS By Thomas J. Mays, A.M., M.D. New York: E. B. Treat & Co., 1901. 539 pp., 8vo. Price: Cloth, \$3.00.

The title of this book is odd, indeed. It scarcely expresses the object for which it was written; moreover, it makes use of a term which has long since disappeared from scientific nomenclature. Let the reader turn to the title-page and examine the preface. There may be found a reason for the publication, and possibly an explanation for the novel output. Five propositions are advanced: that pulmonary phthisis in the large majority of cases is primarily a neurosis, the pulmonary disintegration being secondary; that any agent, influence or condition which undermines the integrity of the nervous system will engender pulmonary phthisis or some form of pulmonary *disorder*; that the *only* remedies for pulmonary phthisis are those which appeal to and act through the nervous system; that of special value in the treatment of phthisis is the counter-irritant action of nitrate of silver introduced hypodermically over the vagi of the neck; that acute pneumonia and other forms of acute pulmonary disease are closely affiliated with *disorder* of the nervous system. The explanation of these ideas and convictions, not in exact accord with the teaching of the day, is that they are the result of thirty years of devotion to conscientious study of a single line of thought. Uric acid, as a single line of thought, has been productive, after years of pursuit, of a book and of propositions quite as sweeping. The bond of sympathy between the two processes is expressed in this volume in the words "it is not very difficult to conceive that uric acid may play an important part in the causation of pulmonary consumption." We are compelled to give the palm to one uric acid friend who proposes to prevent "consumption." The second prize will await the bold therapist who does not begin his operations with hypodermic syringe and silver nitrate until the acid has disordered the vagi. It may be well to examine some of the statements and arguments of this book. The definition of that ancient disease, "pulmonary consumption," is that "it is a chronic wasting disease of the whole body, in which the lungs are actively involved." To say the least that is hardly logical. It certainly is not a scientific statement of the differentia. In the etiology, infection is placed the last of three classes, of which the first includes those agents which vitiate the nervous system in general and the pulmonary nerve supply in particular. Evidence is sought to support this statement in clinical medicine. Abstracts of a large number of histories are given to show that phenomenon or disease of the pulmonary nerves is followed by pulmonary

disintegration in some form. Pathological change in the lungs, in nearly all, was associated with lesion of the vagi. This is an interesting and important point. He will await the results of more extended investigation along these lines before subscribing to the radical conclusion expounded in this book. The treatment by nitrate of silver and muriate of cocain hypodermatic injection is fully described. It is recommended for asthma, bronchitis and pulmonary consumption. Its trial in the Kings County Hospital, by Dr. G. H. R. Gosman, of this city, is fully acknowledged. One may well doubt, as he reads these pages, the real status of the work. There is a carelessness of expression which ought not to be found in a thoroughly scientific treatise. For instance a cursory remark about "mumps," "that, as a rule, it is a mild specific disease, but when complicated is, in some way, a forerunner of pulmonary consumption, possibly through intoxication of the pneumogastric nerve."

MEDICAL NEWS POCKET FORMULARY FOR 1901. By E. Quin Thornton, M.D. Third Edition, Revised and Enlarged. Philadelphia and New York: Lea Bros. & Co., 1901. 287 pp., 8vo. Price: Limp morocco, \$1.50 net.

A number of formulæ have been inserted in this work. The volume will be quite as serviceable as its predecessors.

INTERNATIONAL MEDICAL ANNUAL. A Year-Book of Treatment and Practitioner's Index, 1901. Nineteenth year. New York: E. B. Treat & Co., 1901. 5 l., 682 pp., 14 pl. 8vo. Price: Cloth, \$3.00.

A special article on toxines and antitoxines has been added. Prof. Ruata, University of Italy, contributes an article on tuberculosis. Special articles on X-ray work in medicine, on color-blindness, and dental and oral surgery are of interest. It will be found of the same practical value as previous volumes.

THE JOURNAL OF HYGIENE. Published Quarterly. Cambridge, Eng.: University Press. New York: The Macmillan Co., 1901. Subscription, per volume, 15s.; single numbers, 5s.

Vol. 1, No. 1, of this new journal, dated January, 1901, has recently made its appearance. It is to be issued quarterly under the editorial charge of Dr. George H. F. Nuttall, Dr. John S. Haldane, and Dr. Arthur Newscholme, and doubtless will take high rank among the periodicals in this special field. In the introductory statement of the aims of the new journal, the editors express their opinion that "the *Journal of Hygiene* will fulfil a definite purpose by serving as a focus to English-speaking investigators for work in Physics, Chemistry, Physiology, Pathology, Bacteriology, Parasitology, and Epidemiology, in relation to Hygiene and Preventive Medicine. With a view to increasing the general usefulness of the *Journal of Hygiene* we propose not to limit the contributions entirely to reports of original observations and experiments, but to accept and encourage discussions of administrative and

practical questions, the importance of which is apt to be overlooked in scientific journals. We also contemplate the occasional publication of collective and critical reviews upon subjects of general interest in the domain of hygiene, these papers to be accompanied by adequate bibliographical references. Although the list of collaborators is limited to those whose native tongue is English, we trust that foreign investigators will understand that their contributions will be welcome."

The medical profession of the United States is well represented by twenty-six of the seventy-two collaborators, who are mostly men of international reputation.

The new periodical is a large octavo in size, and presents the fine typographical appearance which characterizes the publications of the Cambridge University Press. Each volume is planned to contain about 500 pages, with plates and figures. Following an interesting article by Dr. Nuttall (and others), entitled "Studies in Relation to Malaria," the first number contains valuable monographs by Drs. E. Klein, T. M. Legge, John Haldane, J. Lorrain Smith and A. Percy Hoskins, James Ritchie and Arthur Newsholme. Taking this first number as a criterion, a journal of the highest scientific value may be expected.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D., Vol. I., March, 1901. Surgery of the Head, Neck, and Chest; Infectious Diseases, Including Acute Rheumatism, Croupous Pneumonia and Influenza; Diseases of Children; Pathology; Laryngology and Rhinology; Otology. Philadelphia and New York: Lea Bros. & Co., 1901, vii, 17-440 pp., 8vo. Price: Cloth, \$2.50.

This volume continues the satisfactory review of medical and surgical subjects which the previous issues promised. Drs. S. Chalmers Da Costa, Frederick A. Packard, Floyd M. Crandall, Ludwig Hektoen, A. Logan Turner, F.R.S.C., Edin.; Robert L. Randolph are the contributors.

A TEXT-BOOK OF DISEASES OF THE NOSE AND THROAT. By D. Braden Kyle, M.D. With 175 illustrations, 23 of them in colors. Second Edition. Philadelphia: W. B. Saunders & Co., 1900. 646 pp., 1 l., 12 col. pl. 8vo. Price: Cloth, \$4.00 *net*.

The first edition of Dr. Kyle's work was reviewed in *THE BROOKLYN JOURNAL* of April, 1900. The fact that this second edition was necessary in one year after the first production appeared as a practical evidence of its deserved popularity. It is also a testimony of the author's vigor and industry, that he has been able to revise and improve his book in so brief a time. Considering its moderate size, it covers the subject in a very thorough manner. We would further commend the excellence of the original lithographs and drawings from specimens in the author's possession. The volume bears every indication of patient research and attention to details. It is a helpful book, and well worthy of careful study. We congratulate Dr. Kyle and Mr. Saunders. W. F. DUDLEY.

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

EDITOR IN CHIEF:

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VOL. XV. No. 8.
WHOLE No. 164.

} BROOKLYN, N. Y., AUGUST, 1901.

} Single copies 25 cents
} \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

THE BROOKLYN WATER SUPPLY.

BY ARTHUR S. TUTTLE, M. AM. SOC. C. E.

Read before the Medical Society of the County of Kings, September 4, 1900.

The Borough of Brooklyn obtains its water supply from that portion of Long Island bounded on the north by what is known as the backbone of the island, on the east approximately by the boundary line between Nassau and Suffolk counties, and on the south and west by the extreme boundary of the island itself. The Brooklyn water works occupy a unique position as compared with those of other large communities, not only by reason of having no single large contributing source, but also by maintaining a relatively high draft from the watershed area with but little aid from storage reservoirs, the total storage being equivalent to but slightly more than ten days' supply. The existence of these peculiarities is due to the geological formation of the island, the flat surface and narrow width of which are not favorable to the development of large rivers, while the rainfall is largely

absorbed by the sands and gravels forming the surface, and transmitted by them slowly either to the small streams or to the ocean, and at a comparatively uniform rate throughout the varying seasons, thus affording an immense natural underground reservoir.

The geological structure of Long Island has not yet been determined in detail, but the general features are of great interest in connection with the present supply and the development of additions. The formation consists principally of glacial till and drift, resting on tertiary sands, gravels, and clays, under which are cretaceous sands, gravels, and clays, resting in turn on the archæan or crystalline rock. Rock crops to the surface in the vicinity of Astoria, is known to be 182 ft. below the surface at Calvary Cemetery, and 550 ft. below at Woodhaven, other than at which points it has not been actually located on the island.

During the various geological epochs this basal rock was repeatedly submerged and elevated, each period marking progress toward its final completion by the great North American glacier, the terminal of which appears as the series of hills and hollows previously referred to as the backbone of the island. This ridge or backbone is located mostly along the northerly shore of the island, and passes through Fort Hamilton, Greenwood Cemetery, Cypress Hills, Roslyn and East Northport, thence sweeping southerly to Ronkonkoma and northerly again to Port Jefferson; from this last point it divides, one branch reaching toward Greenport and the other toward Montauk. It ranges in elevation from about 100 ft. to about 384 ft., the highest point being located at Roslyn. To mark the path of the glacier we have the series of indentations or harbors along the north shore, opposite each of which there is a correspondingly greater elevation of the ridge. South of the moraine the surface is flat and slopes gently toward the sea. During these geological periods the Connecticut River is supposed to have changed its course from due south directly across the island, first to the southeast, with an outlet at Peconic Bay, and finally with the last change in configuration finding its present mouth with the formation by the ice sheet of Long Island Sound. The exposed crystalline rocks of the Southern Connecticut coast, and a similar barrier on the west side of the Hudson, clearly indicates that Long Island is cut off from an underground supply from the mainland, while the lower stratum tertiary blue clay points to the upper sands and gravels as the chief water bearing formations of the island; the

lack of continuity of the blue clay explains the occasional success met with in developing deep supplies.

The present knowledge is, in great measure, due to explorations made by the Brooklyn Department of City Works, between 1895 and 1898, when a chain of test wells was sunk along the watershed to determine the possibility of developing a supply from deep sources; these wells were carried to depths ranging from 140 ft. to over 400 ft. below tide. The blue clay was invariably found, but its depth below the surface varied from about 65 ft. to about 300 ft., and the thickness of the formation ranged from about 10 ft. to over 300 ft. A few points were located where a supply could be developed from the tertiary gravel just below the blue clay, but the great water bearing formation drawn upon for the water supply is that forming the upper surface, and having a depth estimated by Prof. W. O. Crosby, of the Nassau Institute of Technology, after examining all available borings, as usually ranging from 50 ft. to 100 ft. This surface formation, covering the entire area between the ridge and the ocean, is supposed to consist largely of washings from the exposed crystalline rock of Southern New England, since stained yellow by iron from the underlying clay. The surface south of the ridge has a slope toward the ocean at the rate of about 16 ft. to the mile, while the water percolating through the yellow sand has an inclination in the flatter portion of the western end of the island of about 8.5 ft. per mile. The sands and gravels vary in size, as might be expected from the character of the formation, resulting in a theoretical velocity of flow of the underground water toward the ocean ranging from a few hundred feet to possibly a few miles per annum, and probably averaging less than one mile, thus affording abundant opportunity for such purification by Nature as may be required.

About one half of the supply is obtained from surface streams and the remainder from underground sources; there are thirty-five contributing points, the present yield from the aggregate number averaging about 3,000,000 gallons daily each, or a total of about 103,000,000 gallons. Of this amount about 92,500,000 gallons daily are obtained from the twenty-eight streams and driven well stations located in the counties of Queens and Nassau, and comprising the Ridgewood municipal system, while the remainder of the supply is obtained from three driven well plants and one open well plant owned by the city, and two driven well plants and one open well plant owned by private companies, all

located within the limits of the borough. The sources of supply are given in the accompanying Table No. 1, and their location is shown on the map. The Ridgewood system is the one originally designed, and since developed and extended for the supply of the city, and is by far of the greatest importance; the other stations, with two exceptions, have been built under franchises granted by the county towns prior to their incorporation within city limits.

TABLE NO. 1. SOURCES OF WATER SUPPLY.

Ownership.	System.	Wat'r shed.	Surface water supplies.	Ground water supplies.	Surface and ground water supplies.
City.	Ridgewood	Old	Baiseley's Stream.	Spring Creek Driven Wells—old.	Watts' Pond.
"	"	"	Simonson's "	" " new.	Smith's "
"	"	"	Clear "	Shetucket "	"
"	"	"	Valley "	Oconee "	"
"	"	"	Pines "	Baiseley's "	"
"	"	"	Shodack Brook.	Jameco "	"
"	"	"	Hempstead Stream.	Springfield "	"
"	"	"	"	Forest Stream "	"
"	"	"	"	Clear "	"
"	"	New	Milburn Stream.	Agawam "	"
"	"	"	E. Meadow Stream.	Merrick "	"
"	"	"	Newbridge "	Matowa "	"
"	"	"	Wantagh "	Wantagh "	"
"	"	"	Massapequa "	Massapequa "	"
"	Gravesend	B'k'n	"	Gravesend "	"
"	New Utrecht.	"	"	New Utrecht "	"
"	East	"	"	"	"
"	New York	"	"	New Lots "	"
Private	East	"	"	German American Improvement	"
corporation	New York	"	"	Co. Driven Wells.	"
"	Flatbush.	"	"	Flatbush Water Works Company,	"
"	"	"	"	Driven Wells.	"
"	Blythe-	"	"	Blythebourne Water Company,	"
"	bourne	"	"	Open Wells.	"
City.	Park Department.	"	"	Prospect Park "Artesian" well.	"

RIDGEWOOD SYSTEM.

Rainfall, and Watershed Area and Yield.—The watershed is, in general, of a triangular shape, with one apex located at Ridgewood Reservoir, another at Huntington Railroad Station, and the third at Massepequa. The line joining Massepequa and the Ridgewood Reservoir marks the position of the conduit and intakes, and is about 23 miles long; that from the Ridgewood Reservoir to Huntington is, as already described, along the ridge or backbone of the island, and is about 28 miles long; the third side is along the county line, and is about 13 miles long. The area directly tributary to the supply comprises about 157 square miles, or about one-eighth of the total area of the island. The

original watershed, as developed in 1858, extended from the borough line to Rockville Center and Hempstead, and had an area of about 50 square miles; this has since been developed to include a total of 67 square miles. The remaining 90 square miles comprise the new watershed east of Rockville Center, brought into service in 1891.

The average annual rainfall in the watershed is about $43\frac{1}{2}$ in., ranging from a minimum of 32 in. to a maximum of 59 in.; the maximum, recorded, annual yield of the old watershed is over 45 per cent. of the precipitation for the year, and that of the new nearly 25 per cent., the latter being limited by insufficient conduit capacity as hereinafter explained. During the year 1899, when the rainfall was approximately the average, the old shed yielded about 775,000 gallons daily per square mile, or about 37 per cent. of the rainfall, and the new shed furnished 450,000 gallons per square mile, or about 21 per cent. of the rainfall. Owing to the lack of proper storage reservoirs the draft must be maintained almost uniform, and at the average throughout the year, which, as already stated, is quite contrary to the practice of other cities, and often during periods of long draught occasions alarm to the authorities in charge. To illustrate this point it is only necessary to compare the existing conditions with those on the Croton watershed, where the maximum development of the shed is expected to yield, with about the same rainfall, only a little over 750,000 gallons daily per square mile, with storage equivalent to over 250 days' supply. In San Francisco, with a variable rainfall, it is considered necessary to provide storage capacity for 900 days' supply.

Recommendations have been frequently made by the engineers of the Department of Water Supply for increasing the storage reservoir capacity by repairing the reservoir at Millburn and the construction of a new one at Forest Park.

Conduits and Force Mains.—Beginning at Hempstead Pond, the easterly terminal, a brick conduit extends to the Ridgewood old pumping station, collecting all of the supply from the old watershed; this conduit is designated as the old conduit, having been built as a portion of the original works.

The new conduit, which was completed in 1891, extends from the Massapequa Supply Pond, the easternmost point of supply, to the Millburn Pumping Station, and collects the supply from all of the stations on the new watershed, excepting Millburn Stream.

From the Millburn Pumping Station, a 48-in. cast iron pipe extends to the Ridgewood Station, following the line of the old conduit, and on the south side of the same from Smith's Pond west; on the westerly side of the Millburn Reservoir, it connects with a 36-in. pipe which parallels it to Smith's Pond, there connecting with the old conduit at the Culvert Gate House, over the Pines Stream.

The entire supply is pumped at the Ridgewood station, through four 36-in. pipes from the old station on the north side of Atlantic Avenue, and one 42-in. and one 48-in. pipe from the new station on the south side of Atlantic avenue, into the Ridgewood distributing reservoir.

The location of the conduits and their sections are shown on the accompanying map, which also shows the lower section of the additional pipe conduit, which is to extend from the Millburn to the Ridgewood station. This lower section consists of two 48-in. cast iron pipes.

The old conduit is 12.4 miles in length, is built of brick, stone, and concrete, and usually rests on a plank foundation. The conduit invert is level from Ridgewood to Spring Creek, whence it rises with a grade of approximately 6 ins. per mile. From a point just west of Lynbrook to a point west of Rosedale the conduit parallels and immediately adjoins on the north the Montauk Division of the Long Island Railroad. The supply from the Hempstead Storage Reservoir is delivered into this conduit just below Hempstead Pond, through a branch barrel conduit, which also receives the supply from Schodack Brook. Similar barrel conduits connect the gravity supply ponds at Pines, Valley Stream, Clear Stream, Simonson's and Baiseley's from the north into the main conduit, while iron pipes are used to deliver the pumped supply from Smith's Pond, Watts' Pond and Driven Well Station, and the driven well stations at Clear Stream, Forest Stream, Springfield, Baiseley's Oconee, Shetucket and Spring Creek, all of which stations, excepting Spring Creek, Oconee and Baiseley's, are on the south side of the conduit. At Ridgewood the conduit connects into a pump well located at the old station, while a branch conduit connects into a similar well in the new station.

The new conduit is 7.4 miles in length; except through the supply pond dams and the channels at Culverts 13, 14 and 16, where 48-in. cast iron pipe is used, the conduit is of brick, the invert resting on concrete, and the whole built on a timber plat-

form 5 in. thick. It immediately adjoins on the south the East Meadow, Newbridge and Wantagh supply ponds, each of which connect into it through two gate houses, one at each end of the dam. The Massapequa Pond is on the north side of the conduit, and connects into the same terminal through a terminal gate house at the southwest corner. The west end of the conduit is at the Millburn Pond pump well, with which the Millburn Pond connects directly from the south. The Massapequa, Wantagh, Matowa, Merrick and Agawan driven well stations are located on the south side of the conduit, and are connected into it through cast iron pipes. Throughout its whole length this conduit immediately adjoins on the north, and practically parallels, the Montauk Division of the Long Island Railroad. It has a uniform grade of 1:10,000, with an additional allowance for loss of head in passing through the 48-in. pipe syphons.

Under the original plan of the works on the new watershed, the force main was to consist of about $1\frac{1}{2}$ miles of 48-in. main, extending from the Millburn Pumping Station to the Millburn Reservoir, into which all of the supply of the shed was to be pumped, and thence delivered to the Ridgewood pump wells, in part through a line of 48-in. pipe, 13.4 miles in length, and in part through a line of 36-in. pipe about 1.5 miles long, connecting directly into the old conduit at Smith's Pond Gate House. A 48-in. by-pass for direct pumping was provided at the reservoir, so that the supply could be pumped into the delivery pipes independently of the reservoir. Owing to the failure of the reservoir to hold water, this by-pass has been in constant use. The connections between the force main and delivery pipes are such that the supply may be delivered at Ridgewood through the 48-in. pipe, or through the old conduit, or partly through both, as desired.

The dimensions of the conduits range from a height of 8' 8", and width of 10 ft. for the largest section of the old conduit, to a height of 5' 11" and a width of 7' 4" for the smallest section of the new conduit.

The capacity of the lower section of the old conduit was originally estimated by Mr. Kirkwood, at that time the chief engineer, as 45,000,000 gallons daily.

The combined capacity of the 48-in. pipe from Millburn Station to Ridgewood, and of the 36-in. branch from the same between Millburn Reservoir and Smith's Pond, is limited to 40,000,000 gallons daily, and it is estimated that when both pipes

are used 25,000,000 gallons are delivered directly at Ridgewood through the 48-in., and 15,000,000 gallons through the 36-in., into the old conduit at Smith's Pond, so that to maintain the supply the old conduit is often called upon to carry about 75,000,000 gallons per day, some of the sections almost running under pressure. To relieve this condition and to secure supplies already developed, and to be developed in the new watershed, it was planned to lay an additional pipe conduit from Millburn to Ridgewood, the section in deep cut between Ridgewood and Spring Creek to consist of a double line of 48-in. cast iron pipe, and the remainder to be of 66-in. steel pipe; the first-named section has been completed, as already stated, but work on the latter has been postponed since 1896, owing to lack of appropriations, during which interval the increase in price of steel has necessitated the adoption of a new plan, under which a 48-in. cast iron pipe will be used instead. The force mains from the Ridgewood pumping station to the Ridgewood Reservoir consist of four lines of 36-in. pipe, one of 42-in. and one of 48-in. pipe. Two of the 36-in. lines were laid as a part of the original works, the remainder having been added since and as required.

Surface Supplies.—The streams and ponds making up the surface supplies, in their order from Ridgewood east, are given in Table No. 2, which also gives their estimated minimum yield. All of the supply ponds are artificial, and all excepting Clear Stream, Pines, East Meadow, Newbridge, Wantagh Lower Pond, and Massapequa, were constructed originally and prior to their purchase by the city, for water-power purposes; the exceptions named were built by the city as part of the works. The yield of the streams on the old watershed, as herein given, is based on the dry season gaugings of 1894, while those of the new shed are proportioned approximately according to the results shown by the 1883 gaugings (which showed a total yield of 14,434,000 gallons daily), to make a total daily yield of 26,000,000 gallons, which is the minimum total supply obtained from these streams. The difference between the gauged flow of the streams on the new watershed and the actual yield, is probably largely due to the low elevation of the ponds as built, and to the fact that the conduit is usually below the water level of the adjoining territory. The ponds of the old watershed, excepting Hempstead, are located at distances varying from 1,800 to 2,900 ft. north of the conduit, while those of the new shed immediately adjoin the conduit, thus, in the latter case, securing not only a lower elevation of

waste weir and a greater draught from the saturated bed, but also a diminished cost of construction. All of the supply ponds are provided with drains at the lowest level, so that in every case they may be fully drained, excepting at Newbridge, where the elevation of the pond bottom is below that of the stream below the dam.

TABLE NO. 2. SHOWING WATERSHED AREA AND YIELD OF SURFACE STREAMS.

Stream.	Location of Water-Shed.	Water-shed Area. Sq. miles.	Storage Capacity. Gallons.	Estimated Minimum Daily Yield. Gallons.
Baiseley's.....	Old	10.3	42,000,000	3,000,000
Simonson's.....	"	8.6	10,000,000	2,000,000
Clear Stream.....	"		1,000,000	200,000
Valley Stream.....	"	6.2	21,000,000	1,300,000
Pines.....	"	6.4	9,000,000	600,000
Shodack Brook.....	"	18.4	27,000,000	1,000,000
Hempstead Pond.....	"			8,000,000*
Milburn.....	New	3.2	11,000,000	2,000,000
East Meadow.....	"	20.7	19,000,000	9,500,000
Newbridge.....	"	2.7	11,500,000	2,000,000
Wantagh.....	"	19.7	44,000,000	6,000,000
Massapequa.....	"	36.2	17,000,000	7,000,000

* Includes yield of Hempstead Reservoir.

The Baiseley's stream has not been used since 1894, owing to the pollution of some of its principal tributaries. Plans have been prepared by the Department of Water Supply for the filtration of the supply, and it is expected that the work will shortly be begun.

Supply from Ponds and Open Wells.—When the original gravity supply had become fully absorbed, and while the construction of the Hempstead Reservoir was in progress, it became necessary to secure a supply from additional streams on the watershed, and temporary pumping plants were erected at Smith's and Watts' ponds. These were followed by the construction of permanent stations at both points, and the supply of each further increased by the construction of an open well. The Springfield station was constructed later, and of a similar general design to the other two.

The Springfield Stream watershed has an area of 7.1 square miles, and together with the open well was estimated to furnish an average daily supply of about 2,000,000 gallons. Owing to its pollution by the village of Springfield its use was abandoned in 1897, and a deep driven well station substituted. The Depart-

ment of Water Supply proposes to erect a filter plant here and, after purification, again make use of the surface supply.

Watts' Pond receives drainage from 2 square miles not appropriated by Valley Stream Pond, and together with the open well, is estimated independently of the driven wells at the same station to furnish about 800,000 gallons daily.

Smith's Pond is the lowest in the valley, drained by the Pines, Hempstead and Schodack streams, and collects the waters from the drainage area of 0.4 square mile is not previously intercepted. The average daily pumping is about 4,500,000 gallons.

Driven Wells.—The proportion of the total daily Ridgewood supply obtained from driven wells has increased steadily since these sources were first introduced in 1883, reaching nearly 30 per cent. in 1895, and increasing to a maximum of 45 per cent. in both 1896 and 1897, when the new driven wells of the Eastern Watershed were under test. The wells were first intended as a temporary means of avoiding a water famine, it being possible to construct them quickly and speedily, as compared with the time and expense required for the development of additional watersheds, and for the same reasons their use has continued and increased. All of the wells driven prior to 1894 were 2 in. in diameter, excepting only the four 4-in. and three 6-in. deep wells at Jameco, which latter were sunk between 1891 and 1893, to depths ranging from 150 ft. to 165 ft., and which were the first deep wells used for the supply. The wells put in since 1894 have been 4½, 6 or 8 in. in diameter, excepting only the 10-in. well sunk at Jameco, and the 2-in. test wells used to determine the fluctuation of the underground water. The 2-in. wells are fitted with a pointed strainer at the lower end, and are driven by a machine operated by hand. The larger wells consist of an outer casing, which is washed and turned down, the sand bucket being used as required, and an inner drop suction of inserted oil well casing, with screw and socket joints. The cutting shoe at the lower end of the casing is a sawtooth coupling, above which is sometimes placed a short piece of pipe for a sand pocket, the next length being the strainer or perforated pipe, which is carried into the water-bearing stratum. Several types of strainer are used for the larger wells, all consisting of a brass tube or ribbed pipe covered with brass cloth. The large yield from the deep wells at Jameco, already mentioned, led to the inauguration of the work of sinking test wells at various points in the water-

shed to determine possible locations of deep well stations, which work has previously been referred to.

From the data obtained by the construction of these test wells, sites for the deep well stations at Jameco, Spring Creek, Oconee, Shetucket and Springfield were selected.

In sinking many of the wells considerable difficulty was experienced in passing obstacles, and more particularly lignite. Besides the driven well plants of the Ridgewood system, operating

TABLE NO. 3. SHOWING DATA RELATING TO THE DRIVEN WELL STATIONS.

Station.	No. and Size of Wells—Inches.	Depth of Wells—Feet.	Daily Yield When Tested. Gallons. *
Spring Creek—old plant.....	150—2	30—42	4,000,000
“ “ new plant.....	1—6 and 7—8	149—157	2,000,000
Shetucket.....	13—6	42—75	4,500,000
Oconee.....	12—8	180	3,500,000
Balseley's.....	12—8	195	2,500,000
	100—2	28—65	2,000,000
	183—2	27—73	
Jameco.....	4—4	157—165	
	3—6	151—154	6,500,000
	16—8	147—180	
	1—10	160	
Springfield.....	20—8	170	2,500,000
Forest Stream.....	110—2	33—56	3,500,000
Clear Stream.....	150—2	20—53	3,000,000
Watt's Pond.....	12—6	48—53	2,500,000
Agawam.....	32—6	33—91	3,500,000
Merrick.....	62—4½	39—110	4,000,000
Matowa.....	46—4½	38—97	4,000,000
Wantagh.....	{ 43—4½ }	24—92	3,500,000
	{ 6—6 }		
Massapequa.....	53—4½	37—106	5,000,000

*Owing to interference with surface supplies and with each other, the stations collectively will not yield their full quota, the maximum average daily yield for the first ten (10) stations (old watershed) having been for a whole year about 28,000,000 gallons, and for the last five (5) stations (new watershed) about 14,000,000 gallons.

in the same watersheds, are the following open and driven well supplies—Woodhaven, Long Island Railroad Company, Jamaica, Queens County Water Company (Fenhurst), Rockville Center, Freeport, Hempstead and Garden City.

The legal right of the city to drain the sub-surface water from the territory adjoining the pumping stations has been asserted, but has recently been overruled by the courts, and the city held liable for damage sustained owing to a diversion of underground waters.

Considerable trouble has been experienced in the operation of some of the 2-in. wells, the silica partially closing the screens and reducing the velocity of the water to such an extent as to permit

the iron, which is sometimes present in large quantities in the soil, on being converted into an insoluble oxide, to precipitate, entangling the clay, sand and earth which passes the screens, and depositing them in the well tube to the extent, in some cases, of completely filling the same and stopping the flow.

In the foregoing Table No. 3 there is given the yield of each station, as indicated by special tests and other data relating to the supply.

Main Pumping Stations.—The main pumping stations of the Ridgewood system are those at Millburn, Ridgewood and Mt. Prospect. At Millburn all of the supply of the new watershed is pumped to the Ridgewood Station, where both it and the supply from the old watershed is again pumped and delivered into the Ridgewood Reservoir. The Mt. Prospect Station draws from the distribution system, and pumps the supply required for high service in part into the Mt. Prospect Reservoir and in part into the Mt. Prospect stand pipe. Assuming that the old watershed furnishes 15,000,000 gallons by gravity, and 35,000,000 gallons daily from open and driven wells, and that the new watershed furnishes 35,000,000 gallons daily by gravity and 5,000,000 gallons daily from driven wells, it will be seen that to deliver the 90,000,000 gallons daily into the low service distribution system, 15,000,000 gallons have been pumped once, 70,000,000 gallons twice, and 5,000,000 gallons three times, to which must be added an additional pumping for the 9,000,000 gallons required daily for the high service.

The pumping plant at Millburn consists of five (5) horizontal, direct acting, triple expansion engines, each having a capacity of 10,000,000 gallons daily, and ten (10) internally fired return tubular boilers, each of 70 horse-power; the average lift at this station is strengthened over fifty (50) ft.

There are two pumping stations at Ridgewood, both for the same service, but entirely independent; the one on the northerly side of Atlantic avenue was built as a part of the original works, but has been lately remodeled in part, for the installation of new engines and boilers; it is commonly referred to as the old Ridgewood Station. The new Ridgewood Station is located on the southerly side of Atlantic avenue, directly opposite the old station, and was completed in 1891. At the two stations combined there are five (5) vertical, direct acting, triple expansion, duplex pumping engines, each of a capacity of 10,000,000 gallons in twenty-four hours; one (1) beam and fly wheel pumping engine

of a daily capacity of 15,000,000 gallons; two (2) horizontal, direct acting, compound, duplex pumping engines, with an aggregate capacity of 15,000,000 gallons daily; and three (3) vertical, direct acting, triple expansion, duplex pumping engines, each of a daily capacity of 20,000,000 gallons. At the two stations there is, therefore, an aggregate daily pumping capacity of about 140,000,000 gallons; steam is supplied by thirty-four (34) boilers, aggregating over 4,800 horse-power. The lift is about 170 ft.

The Mount Prospect Reservoir service is supplied by two (2) vertical, beam and fly wheel pumping engines having an aggregate daily capacity of 9,000,000 gallons; the stand pipe, or high service, is supplied by three horizontal, direct acting, triple expansion pumps, with a combined capacity of 5,500,000 gallons daily. There are four (4) boilers, aggregating over 400 horse-power. The lift for the reservoir service is about 70 ft. and for the tower service about 140 ft.

Reservoirs and Stand Pipe.—The points of storage and distribution of the supply of the Ridgewood system comprise the Millburn and Hempstead storage reservoirs, the Ridgewood and Mt. Pleasant distribution reservoirs, and the Mt. Prospect stand pipe, the location of each of which is shown in Plate No. 1. Surveys have recently been made for a reservoir to be located at Forest Park, about $1\frac{1}{4}$ miles east of the Ridgewood Reservoir, and to have a capacity of 250,000,000 gallons.

The Millburn reservoir was designed as a storage basin to receive all of the supply from the new watershed. The elevation of the top of bank is 51.4 ft., that of the high-water line is designed to be 47.4 ft., and the average for the bottom is 22.5 ft. The area of the reservoir at high-water line is 48 acres, and its capacity at the same elevation is 373,000,000 gallons. On account of the failure of this reservoir to hold water it has never become a part of the system of supply, the necessary repairs not having been made owing to lack of funds.

The elevation of high-water line of the Hempstead Storage Reservoir is about 30 ft., and that of the bottom, at the efflux chamber, about 11.5 ft. Its length is about 8,500 ft., and its width about 1,200 ft.; the total storage capacity is about 800,000,000 gallons, the use of which during the dry seasons has been of invaluable assistance in maintaining the supply. The Hempstead Stream, above the reservoir, passes through the village of Hempstead, draining a thickly populated section, and reaching the upper end of the reservoir in a highly polluted condition: but by

dilution and sedimentation its condition is much improved in passing through the reservoir. To retain as much as possible of the supply and at the same time remove the objectionable matter carried into it during storms, a 36-in. by pass pipe was laid two years ago, with an intake at the head of the reservoir, and an outlet below Smith's Pond. By the manipulation of gates at the upper end of this by-pass, the supply, when objectionable, may be wasted.

The Ridgewood reservoirs are the distributing basins for the Ridgewood system, two of the basins (Nos. 1 and 2) being a portion of the original works, while the third and westerly basin (No. 3) was finished in 1891. A common influx chamber on the south side of the reservoir, at the dividing bank between Basins No. 1 and 2, serves for both, while a single efflux chamber on the north side of the basin and at the opposite end of the division wall connects them both into the distribution system. The influx chamber of basin No. 3 is near its southeast corner, while the efflux is on the north side. Basins No. 1 and No. 2 are connected and equalized at their common efflux chamber, while No. 3 may be connected or disconnected from No. 2 by means of a 36-in. pipe syphon. The elevation of the top of bank is about 174 ft.; the normal high-water line about 170 ft., and the bottom, about 150 ft. The areas of the reservoirs at high water and in their numerical order are 11.85 acres, 13.73 acres and 24.29 acres. Their respective capacities in the same order are 71,500,000, 83,000,000 and 149,500,000 gallons, the total storage being 304,000,000 gallons.

Two years ago a 60-in. steel by-pass was laid around the westerly side of the reservoir, by means of which any one or more of the force mains may be connected into any or all of the distributing mains, thus insuring the continuance of the supply in case of accident to any of the basins, and also permitting the supply to be delivered into the distribution system without exposure to light and air at the reservoir, which, at certain seasons has been found to cause an objectionable growth of diatoms in the mixed supply from surface and underground sources.

The Mt. Prospect reservoir faces the plaza at the Flatbush avenue entrance to Prospect Park, and stands on the highest ground in the city. It was constructed under the Welles contract as a high service distributing reservoir. The water is delivered to it at the northeast corner through a 30-in. force main from

the Mt. Prospect engine house. The delivery into the distribution system is made through two 20-in. pipes leading from the gate house located on the side immediately adjoining Flatbush avenue. The force mains and delivery pipes are connected at Flatbush avenue and Eastern Parkway, so that delivery may be made into the distribution system independent of the reservoir, if desired. The elevation of the top of bank is 202.8 ft., the high-water line is at 198.5 ft., and the bottom at 178.3 ft. The area of the reservoir at high-water line is $3\frac{1}{3}$ acres and its capacity 19,185,000 gallons.

Mt. Prospect stand pipe is located at the corner of the reservoir opposite Underhill avenue, and facing the Eastern Parkway, and was first used in 1894. It is built of wrought iron, and is 16 ft. in diameter and 75.4 ft. high. It has an available capacity of about 111,500 gallons. The elevation of the top of the 10-in. overflow pipe connecting into the reservoir is 278.4 ft., the same being 1 ft. below the top of the tank. The tank is enclosed in a circular red granite tower of 24 ft. inside diameter, with a gallery at an elevation of about 285 ft. The supply and delivery pipes are both 20 ins. in diameter.

Distribution System.—The Ridgewood supply is distributed from the Ridgewood Reservoir through two lines of 36-in. and three lines of 48-in. pipe. The high service distribution is made through two 20-in. pipes from the Mt. Prospect Reservoir and one 20-in. pipe from the stand pipe. The mains and their more important branches are shown on Plate No. 1, those from the Ridgewood Reservoir being marked I., II., III., IV. and V. in the order in which they were laid.

The first Ridgewood main was 36 ins. in diameter, and was laid in 1858 as a part of the original distribution. It connects with the efflux chamber of Basins No. 1 and 2, and extends along Cypress avenue, Cooper street, Broadway and DeKalb avenue to Vanderbilt avenue, thence reducing to 30 ins., and continuing along DeKalb avenue, Fulton street, Joralemon street and Clinton street to Hamilton avenue. At Washington avenue a 30-in. branch extends to the Mt. Prospect Pumping Station. At Adams street a 20-in. branch runs to Plymouth street. At Broadway and DeKalb avenue a 30-in. branch follows Broadway to Rutledge street, where it reduces to 20 ins., and continues along Broadway and Division avenue to Kent avenue; and a 20-in. pipe along Bedford avenue and Rutledge street again connects the Broadway with the DeKalb avenue main.

The second main was 48 ins. in diameter and was laid in 1868. It begins at the old efflux chamber and runs in a southwesterly direction to Vermont avenue and the Highland Boulevard, thence following Vermont avenue, Jamaica avenue and Atlantic avenue to Court street, where it reduces to 36 ins. and continues along Atlantic to Clinton street, there connecting into Main No. I. At Atlantic and Underhill avenues it connects with the 30-in. branch leading from Main I. to Mt. Prospect, and at Nostrand avenue it connects with the DeKalb avenue main through a 20-in. branch.

The third main was laid in 1884. It is 36 ins. in diameter, and parallels Main No. I. as far as Bushwick avenue; thence it runs along Bushwick avenue to Maujer street, reducing at Flushing avenue to 30 ins.; thence it continues as a 20-in. pipe along Maujer street, Union avenue and South First street to Kent avenue. In 1895 the main was continued from Bushwick avenue and Maujer street as a 30-in. pipe along Bushwick avenue, Devoe street, Leonard street, Greenpoint avenue, Manhattan avenue, Kent street and West street to Eagle street, reducing at Greenpoint avenue to 20 ins.

The fourth main is 48 ins. in diameter, and was laid in 1892. It connects into the efflux chamber of Basin No. 3, and parallels Main No. I. to a point on Cooper street near the Borough line; thence it runs to Van Voorhis street, and along Van Voorhis street, Central avenue, Myrtle avenue, Willoughby street, Fulton street and Remsen street to Hicks street. At Fulton and Remsen it reduces to 36 ins., and at Remsen and Clinton to 30 ins.

The fifth main was laid in 1897, and is 48 ins. in diameter. It begins at the efflux chamber of Basin No. 3, and parallels Main No. II. to Atlantic avenue, whence it continues along Jamaica avenue, East New York avenue, Ocean avenue, Fort Hamilton avenue, Thirty-seventh street, Seventh avenue and Thirty-sixth street to Fourth avenue, where it connects with a 20-in. At Fort Hamilton avenue and Thirty-seventh street it reduces to 30 ins., and from the same point a branch 36 ins. in diameter continues along Fort Hamilton avenue to New Utrecht avenue, whence a 20-in. goes along New Utrecht avenue to Sixtieth street.

The principal area served by Mt. Prospect reservoir and stand pipe is bounded approximately by Nostrand avenue, Atlantic avenue, Fifth avenue, Sixteenth street, Fourth avenue, Sixtieth street, Seventh avenue, Greenwood Cemetery, and Prospect Park, of which district the higher portions bordering Prospect Park

and the north side of Greenwood Cemetery and the district south of Sunset Park, are supplied from the stand pipe. The reservoir also supplies a considerable portion of the Columbia Heights District. The areas fed from each service can be altered by manipulation of gates, which manipulation is frequently resorted to in certain districts to meet the varying needs of the service, and abundance or shortage in the available supply.

At the close of 1899 there were nearly 600 miles of pipe in use, the same ranging in diameter from 4 ins. upward to 48 ins., and of which nearly 60 per cent. was 6-in. pipe. There are nearly 112,000 house connections or taps, the same being made with mains of less than 24-in. diameter, the larger pipe being used as feeders; about $2\frac{1}{2}$ per cent. of the taps are metered, meters being required only in supplies used for business purposes.

INDEPENDENT SOURCES OF SUPPLY.

These sources furnish an average daily supply of about 11,000,000 gallons, and comprise the five driven well and two open well stations located within the limits of the borough, and to which reference has already been made. Of these stations, those of the New Lots, Gravesend, New Utrecht and Prospect Park are owned by the city, while the remaining three are owned by the Flatbush, German-American, and Blythebourne Water Companies, the former owning a franchise and the latter being operated in connection with real estate developments.

All of the stations owned by the city are now connected with the mains of the Ridgewood system.

New Lots Driven Well Station.—This station was built by the Long Island Water Supply Company, which was organized in 1881, and given a twenty-five year franchise to supply the Twenty-Sixth Ward, then the town of New Lots. The valuation of \$570,000 fixed in the early part of 1893 by the commissioners appointed on behalf of the city to determine this question, after being strongly contested by the company, was confirmed three years ago by decision of the United States Supreme Court; the payment was made during last spring, when the works became public property. The pumping station is located on New Lots Road, near Fountain avenue, and at the head of a creek. The supply is from twenty-two 2-in. wells having an average depth of about 40 ft., fourteen 6-in. wells with a depth of about 80 ft., and four 6-in. wells sunk in the bottom of an open well to a total

depth of about 70 ft. below the surface. The supply is usually delivered by the direct pressure system, although a reservoir, located on the Highland Boulevard, between Van Sicklen and Schenck avenues, is connected with the works. The average daily pumping is about 4,300,000 gallons.

Gravesend Driven Well Station.—The Gravesend driven well station is located near East Seventeenth street and between Avenues R and S. It was built for the town of Gravesend in 1892, and became the property of the city in 1895, after the town was annexed. The plant consists of 113 2-in. wells, driven to a depth of about 50 ft. below the surface, which is at an elevation of about 20 ft.; it now supplies the Bath Beach, Bensonhurst, Gravesend, Sheepshead Bay, and Coney Island sections. The average daily pumping is about 2,400,000 gallons.

New Utrecht Driven Well Station.—The station is located between Avenues U and V, and near East Fourteenth street, and about 3,000 ft. southwest from the Gravesend station. The first supply was obtained in 1880, and was from open wells located southeasterly from the present station. The plant was owned by the Coney Island Waterworks Company, and supplied parts of the towns of Gravesend and New Utrecht. The company was succeeded in 1885 by the Kings County Water Company, and the location of the works moved to the present site. The plant was later acquired by the New Utrecht Water Company, which sold the works to the city in 1895. The supply is obtained from 120 3-in. wells sunk to a depth of about 30 ft., and averages about 1,200,000 gallons daily. Dyker Heights, Fort Hamilton, Bay Ridge, and a portion of South Brooklyn are now supplied from this station.

Prospect Park Well.—This is familiarly known as the “artesian well,” and was constructed in 1869. The smaller pump well is sunk at the bottom of a larger well chamber, 50 ft. in diameter and 54 ft. deep. It is 35 ft. in diameter and 10 ft. in depth, and is wholly below the plane of saturation, the elevation of the top of the smaller curb being 12 ft. above tide level, while the normal water level is at an elevation of 13.0 ft. The yield has since been increased by sinking four 4½-in. wells in the bottom of the pump well, and four 6-in. wells in the bottom of the larger well, to a depth of about 18 ft. below mean high tide, and now averages about 600,000 gallons daily. The supply is used to maintain the lake, for general park purposes, and for the hydrants along the Ocean Parkway.

Flatbush Water Company's Driven Wells.—The works of this company were built in 1882 to supply the town of Flatbush, which became the Twenty-ninth Ward in 1894. The company did not obtain a franchise, but under the act of annexation the city was debarred from supplying water during the charter life of the company, or until 1931, except by purchase of the works. By mutual agreement the city pays to the company \$30,000 annually for the use of 549 hydrants, and the water rates are the same as those for the supply furnished by the city. The works are located on the south side of Avenue E, at the head of Paerdegat Creek, and between East Thirty-first and East Thirty-sixth streets. The supply is obtained from twelve open wells, each 26 ft. deep and 8 ft. in diameter, with two 4-in. pipes at each, carried to a depth of 40 ft., and from ten 6-in. wells of an average depth of 40 ft. The supply is pumped directly into the distribution system, with which a standpipe is connected. The standpipe is located near the junction of Washington and Franklin avenues, and is 20 ft. in diameter and 102 ft. in height. The average daily supply is about 2,100,000 gallons, including a small amount furnished to the Germania Real Estate Company in the Thirty-second Ward.

German-American Improvement Company's Driven Wells.—The plant is located in the Twenty-sixth Ward, about 1,800 ft. south of New Lots avenue, and opposite Pennsylvania avenue. The supply is obtained from three 6-in. wells driven to a depth of about 65 ft.; and amounts to about 70,000 gallons daily. The works are operated under an arrangement made with the Long Island Water Supply Company, and supply the territory immediately adjoining the pumping station.

Blythebourne Water Company's Well.—The Blythebourne Water Company supplies those portions of the Thirtieth Ward known as Bay Ridge Park, Blythebourne and Borough Park. The principal pumping station is located at Eleventh avenue and Seventy-fourth street, where there are two open wells, one about 5 ft. in diameter and the other about 20 ft. in diameter, each having a depth of about 90 ft. The average daily pumping is about 200,000 gallons.

CONSUMPTION.

The average daily consumption of water from the Ridgewood system between 1860 and 1897 is shown by the annexed diagram

(Plate No 2), which also shows the source whence supply was obtained. The supply for 1898 averaged approximately 90,000,000 gallons daily, and for 1899, 92,300,000 gallons daily; in each of these two years about 52,000,000 gallons daily were obtained from the gravity sources, about 9,000,000 gallons daily from ponds and open wells combined, and the balance from driven wells. The addition of the new watershed east of Rockville Center, at the close of 1891, accounts for the increased gravity yield immediately following that date, while the otherwise diminishing amount furnished by gravity has already been explained as due to interference caused by the development of the supply from underground sources; the net gain due to full development is clearly indicated.

The per capita daily consumption of that portion of the borough dependent upon the Ridgewood system is given in Table No. 4, the record for the last two years also including the Gravesend and New Utrecht supplies, both systems now being connected with the Ridgewood mains. There is an almost invariable annual increase in the per capita demand, the exceptions being either usually coincident with a threatened shortage in the supply, or due to a revision in the method of making the determination; the average annual increase is over one (1) gallon per capita. The records for 1899 show a per capita consumption for the whole city of New York of 112 gallons per day, Manhattan using 127 gallons, Bronx 114 gallons, Brooklyn 91 gallons, Queens 89 gallons, and Richmond 79 gallons. To determine how much of this supply is legitimately used, studies have recently been made by experts for the comptroller and for the Merchants'

TABLE NO 4. PER CAPITA DAILY CONSUMPTION FOR THAT PORTION OF THE BOROUGH OF BROOKLYN DEPENDENT UPON THE RIDGE-WOOD SYSTEM.

Year.	Consumption per capita daily.	Year.	Consumption per capita daily.
1860	12.3	1880	54.3
1861	14.9	1881	56.0
1862	18.1	1882	57.6
1863	22.9	1883	58.5
1864	27.9	1884	61.2
1865	31.2	1885	64.5
1866	34.8	1886	62.2
1867	37.1	1887	62.4
1868	44.6	1888	65.8
1869	47.2	1889	63.4
1870	47.1	1890	67.0
1871	46.9	1891	68.6
1872	52.9	1892	73.5
1873	55.6	1893	78.9
1874	53.2	1894	71.6
1875	56.0	1895	74.7
1876	56.2	1896	77.7
1877	58.8	1897	80.9
1878	57.3	1898	83.5*
1879	59.9	1899	84.6*

* Includes Gravesend and New Utrecht.

Association of New York, in connection with the investigation of additional sources of supply. Mr. Freeman, who reported to the comptroller, made a series of gaugings of the distribution reservoirs of Manhattan and Brooklyn, covering seven days in the former borough and three days in the latter, to determine the hourly use of water; the deductions are based on the theory that between 2 o'clock A.M. and 4 o'clock A.M. the use is "mainly a measure of waste." Allowing for a proper use between the hours, at the rate of 15 gallons per capita daily in Manhattan and at the rate of about 10 gallons per capita daily in Brooklyn, he estimated from these gaugings that the per capita needless daily waste of water in Manhattan was about 65 gallons, or more than one-half of the supply, and in Brooklyn, 37 gallons, or about 40 per cent. of the supply, this waste being attributed to leaks in mains and service pipes, defective plumbing, and careless and wilful waste; he also estimated that there was a further per capita daily waste of 10 gallons in Manhattan and 8 gallons in Brooklyn, which was due to incurable causes.

Mr. J. Joseph R. Croes, acting for the Engineering Committee of the Merchants' Association, placed meters in twenty-five dwell-

ing houses in Manhattan, and took the records daily for one or two months. During three weeks the returns showed an average per capita daily consumption of 51 gallons for 72 per cent. of the whole number of taps metered, the remaining 28 per cent. showing 166 gallons, making the daily average for all of the houses metered 91 gallons per capita; at those houses where the use appeared to be excessive an inspection discovered continuous leakage, the partial correction of which brought the average daily per capita consumption for the entire number of metered taps, in a second period of three weeks, down to an average of 65.5 gallons. As a result of this and other investigations Mr. Croes estimated the total waste in Manhattan and the Bronx to average about 60 per cent. of the entire supply.

Mr. Foster Crowell, who also made a study of the subject for the Merchants' Association, estimated the needless waste to average 53 per cent. of the entire supply. A comparison of the per capita consumption in New York and in each of the boroughs with that of other large American cities is given in the annexed diagram (Plate No. 3), which also shows the population of each. This diagram shows a range of from 37 gallons to 239 gallons per capita daily, with a general tendency with increasing population to an average about equal to that of the Greater New York. A further comparison, based on percentage of taps metered, shows a decided reduction in per capita consumption with an increased proportion of meters. As related to other large cities New York cannot be considered as an extravagant consumer of water, and as a result of these investigations both the Engineering Committee of the Merchants' Association and Mr. Freeman have considered it advisable in making provision for an increased supply, to allow for a per capita daily consumption as high, or even higher, than the present; both, however, agree that the present waste must be curtailed in order to tide over the interval before an increased supply can be made available.

As our large American cities continue to grow, and suitable sources of supply become more scarce and their development more expensive, there can be but little question that restrictions, if not applied at once, must ultimately be resorted to, and that the longer this step is deferred, the more difficult will be its successful application.

ADDITIONAL WATER SUPPLY.

In 1894 work was begun by the city of Brooklyn on the

further development of the new watershed, by the construction of five new driven well stations, which number it was proposed to increase and to supplement with other works until the full yield of the watershed, estimated at 66,000,000 gallons daily, had been obtained. During the year following, Messrs. Robert Van Buren, the present engineer in charge of the Water Department for the borough, the late Mr. W. E. Worthen, and Mr. I. M. de Varona, the present Engineer of Borough Water Supply, investigated the possibility of obtaining an increased supply of 100,000,000 gallons daily from Suffolk County, L. I., and from the Ramapo River or the Ten Mile River on the mainland. The driven well stations were all completed in 1896, but remain shut down during the greater portion of each year owing to failure in securing the necessary appropriation for the construction of an additional conduit, by means of which their yield and that from such other stations as may later be erected can be delivered to the city.

With the consolidation of New York, Brooklyn and adjoining communities, none of which have water to spare, the problem of providing a suitable and sufficient municipal supply assumed a much greater magnitude, and one which it is difficult to contemplate. Table No. 5 shows the average daily consumption for each of the boroughs during 1899, and the estimated yield of all of the present sources after full development of the Croton, Bronx and Ridgewood systems, and assuming that the other supplies have already been developed as far as practicable.

TABLE NO. 5. SHOWING DAILY CONSUMPTION AND TOTAL SUPPLY TO BE OBTAINED FROM PRESENT WATERSHEDS.

Borough.	Average Daily Consumption in 1899. Gallons.	Estimated Total Yield after Full Development. Gallons per day.
Manhattan.....	230,000,000	275,000,000
Brooklyn.....	103,000,000	125,000,000
Bronx.....	21,000,000	21,000,000
Queens.....	13,000,000	13,000,000
Richmond.....	5,000,000	5,000,000
City of New York.	372,000,000	439,000,000

TABLE NO. 6. SHOWING POPULATION OF THE BOROUGHS OF THE CITY OF NEW YORK, AND THE ANNUAL RATE OF INCREASE.

Borough.	Population.	Annual Increase. Per cent.
Manhattan.....	1,850,093.	2.58
Brooklyn.....	1,166,582.	3.36
Bronx.....	200,507.	8.58
Queens.....	152,999.	5.80
Richmond.....	67,021.	2.62
City of New York.	3,437,202	3.21

Table No. 6 gives the population of the various boroughs, and the rate of increase as based on a comparison of the 1900 census with that of ten years ago. If the consumption continues to increase at the same rate as the population now shows, it appears that the entire supply from present sources will be fully absorbed in 1904, while the intervening time is scarcely sufficient to build works of magnitude at all commensurate with the requirements.

The magnitude of the supply required is also illustrated by carrying this computation still further, when it will be found that on the same basis an additional supply of 250,000,000 gallons daily from other sources will be absorbed in 1919, 500,000,000 gallons daily additional in 1928, and 1,000,000,000 gallons daily additional in 1942.

This condition of the supply has, within the past year, been the cause of much public discussion, and has resulted in independent investigations of all sources of supply at the instance of Comptroller Bird S. Coler and the Merchants' Association of New York, Mr. John R. Freeman conducting the work for the comptroller, while Messrs. Thos. C. Clarke, Rudolph Hering, E. P. North, Dr. Le Roy Dresser, Col. H. S. Haines, Dr. McN. Stauffer, Henry G. Prout, E. E. Olcutt, R. R. Bowker and Henry R. Towne, acting as an Engineering Committee, directed the work for the Merchants' Association. The Engineering Committee was assisted by an Engineering Staff, of which Messrs. J. Jas. R. Croes, L. B. Ward, Foster Crowell, Jos. H. Fuertes,

and Geo. W. Rofter were members. The Merchants' Association also thoroughly considered the legal question involved in the various plans proposed.

The sources which have been considered for the future water supply of Brooklyn, and of the whole city, include Long Island east of the present watershed, the Ten Mile River, the Housatonic River, streams north and west of the Croton, the Ramapo River in New York, the Walkill River and adjoining watersheds, the Delaware River above Port Jervis, the Rondout Creek, the Esopus, Catskill and Schoharie creeks, the Hudson River, Lake George, Lake Champlain, Lake Ontario, and Lake Erie.

Of these small sources the Ten Mile River and Housatonic River, recommended by Mr. Freeman, and the Delaware River, Ramapo River, Walkill River, and Lake Champlain are debarred from consideration under the existing laws as interpreted by the Committee on Legislation of the Merchants' Association, their use interfering with property rights in other States; Lake George, Rondout Creek and the streams north and west of the Croton are found to be either at too low an elevation or too small, or to require a relatively too great expense for development and maintenance, while a supply from the Great Lakes would be out of the question for the last-named reason. Of the remaining sources an extension on Long Island to secure surface waters is prohibited under legislative enactment, and uncertainties are reported to exist concerning the possibility of securing the required storage reservoir capacity required for a development of a supply from the Esopus, Catskill and Schoharie creeks. For these reasons in part, and partly because of the large ultimate capacity of the source, the Merchants' Association committee recommended the use of the Hudson, either by filtering at Poughkeepsie or at Hadley in the Adirondacks. The time required for construction to Poughkeepsie is estimated as six years and to Hadley as seven and one-half years.

In most of the plans considered by Mr. Freeman and by the Merchants' Association provision is made for delivering a supply developed from the mainland into a new reservoir to be located at Park Hill, about 300 ft. above tide, or 185 ft. above the present Croton reservoir, 168.5 ft. above the new reservoir at Jerome Park, and 130 ft. above the reservoir at Ridgewood, thus insuring an ample pressure at all points in the city, and avoiding the necessity of again pumping the supply within the city limits. The cost of the pipe lines, tunnels and right of way necessary to

deliver 100,000,000 gallons daily from Park Hill to Ridgewood, a distance of about sixteen miles, is estimated by Mr. Freeman at about \$3,000,000, with an annual expense of delivery estimated at \$5.11 per million gallons.

In this estimate and those hereinafter given for cost of delivery there is included an allowance for interest on the bonds required for construction, estimated at 3 per cent. per annum in the plans prepared by the Merchants' Association and by Mr. Freeman, and at $3\frac{1}{2}$ per cent. per annum in those reported upon in 1896; there is also included an annual charge for depreciation, the accumulations of which are estimated to be sufficient to renew each part of the work as it becomes unfitted for service. Coal, supplies, salaries and contingencies are also included. In each case it is assumed that the *whole* supply developed is actually delivered; bearing in mind that interest and depreciation charges are constant for both large and small deliveries, their effect on partial delivery would be to very appreciably increase the cost. The principal features of the plans reported upon and affording the greatest advantages are briefly as follows:

Long Island.—By extending the present works easterly about 33 miles to the Connecticut River it was estimated by Mr. I. M. de Varona, in 1896, that from eleven surface streams and five driven well stations it would be possible to obtain an average daily supply of 100,000,000 gallons from a drainage area of about 200 square miles. This supply would be collected in three sections and delivered by gravity through steel conduits to a pumping station at the westerly end of each, where it would be forced through a steel pipe line to the Ridgewood reservoir, distant 56 miles from the most easterly point of supply. No natural facilities are offered for large reservoirs, and the supply would have to be maintained through the dry season by drawing upon the underground storage as in the watershed now in use. The population on this shed was estimated in 1896 as averaging about 90 per square mile. The cost of construction was estimated as \$24,500,000, with an annual expense of \$39.03 per million gallons delivered into the Ridgewood reservoir. The development of a Long Island supply is recommended by the Merchants' Association as being cheaper than the plan which they ultimately propose for the use of the city, and legislation to remove the legal restrictions which now prevents the city from drawing upon any of these eastern sources is strongly urged. Mr. Freeman calls

attention to the possibility of the drainage area being somewhat curtailed owing to peculiarities in the geological formation.

The Ten Mile River.—This stream is a west branch of the Housatonic River, and throughout almost its entire length lies within the limits of New York State. The area of the watershed is estimated by Mr. Freeman as 200 square miles, and the daily yield as 150,000,000 gallons. Under his plan a large dam is proposed at Webatuck, about 10 miles above its junction with the Housatonic, which would impound about 61,000,000,000 gallons at an elevation of 450 ft. The supply would be delivered through an open canal from Pawling to the Sodom reservoir on the Croton watershed, whence a conduit would be built to a new reservoir at Rye Lake, and thence to Park Hill. The total length of conduit and cut would be about 36 miles. The cost of construction is estimated as about \$26,000,000 and the cost per million gallons delivered as \$21.48.

Housatonic River.—As already stated, the use of this stream for a water supply for New York has been recommended by Mr. Freeman. He proposed a single dam just below Merwinsville and below the junction with the Ten Mile River, the storage reservoir thus formed to have an elevation of 455 ft. and a capacity of 181,000,000,000 gallons. The watershed at this point has an area of about 1,020 square miles and the ultimate yield is estimated at 750,000,000 gallons daily. The delivery to Park Hill Reservoir would be made under the same plan as proposed for the Ten Mile River supply, only the conduits would be of larger capacity. To deviate this water from Connecticut Mr. Freeman proposed that power of condemnation be acquired from the Connecticut State Legislature. For the full development he estimated the cost of construction as about \$49,000,000 and the cost per million gallons delivered as \$8.14; for an increased supply of 350,000,000 gallons at present he estimated the cost of construction as about \$44,000,000 and the cost per million as \$13.80. The Engineering Committee of the Merchants' Association recommended that filtration be provided for both this supply and that from Ten Mile River, thus increasing the cost of construction for the whole development to \$67,000,000, or \$11.86 per million gallons, and for the partial Housatonic development to \$46,600,000, or \$15 per million gallons.

The Committee on Legislation of the Merchants' Association, however, have pointed out legal difficulties, previously noted, which, if sustained, place this plan out of consideration.

Ramapo River.—The possible use of this source of supply was reported upon by the late Mr. Wm. E. Worthen, in 1896. Under his plan 150 square miles of the drainage area lying within the State of New York, together with 27 square miles tributary to the Walkill, were estimated as capable of furnishing 100,000,000 gallons daily. Nineteen (19) storage reservoirs were to be provided, having an aggregate storage capacity of about 28,000,000,000 gallons, the lowest of which was located at Suffern, with an elevation of 400 ft.; from this point the supply was to be delivered through pipes and tunnels into the Ridgewood reservoir, distant 41 miles. The estimated cost of construction was about \$15,000,000.

Walkill River.—That portion of the watershed of elevation sufficient to furnish a gravity supply is estimated by the Merchants' Association to have an area of 465 square miles, of which about 190 square miles are in New Jersey. To develop a supply of 250,000,000 gallons daily it was proposed by the Engineering Committee to build a dam at Phillipsburg, having an elevation of 410 ft. and a storage capacity of 53,000,000,000 gallons; this reservoir would flood the "drowned sands," the organic matter in which would necessitate filtration of the supply, while the abundance of limestone in the shed would cause the water to be harder than that of the supply now in use. To deliver this supply to Park Hill reservoir, a conduit line 48 miles long would be required. The cost of construction is estimated at about \$37,000,000, and cost per million gallons delivered at \$18.10. By adding 47 square miles from the Shawangunk, a westerly branch of the Walkill, to the watershed area, and increasing the storage capacity to 219,000,000,000 gallons by raising the reservoir elevation to 422 ft., it is estimated by the Merchants' Association that the supply may be increased to 460,000,000 gallons daily. The cost of construction for the larger project would be about \$63,000,000 and the cost of delivery \$16.54 per million gallons. Mr. Freeman has proposed the use of the Walkill and Shawangunk, together with the Moodna and Popolopen, the two latter being directly tributary to the Hudson, the total drainage area being 626 square miles, which is estimated to yield a daily supply of 520,000,000 gallons. Owing to the flooding of land in New Jersey, which could not be acquired under condemnation proceedings, the use of this stream was not recommended by the Merchants' Association.

The Esopus, Catskill and Schoharie Creeks.—The use of

Esopus and Catskill creeks, and of these together with Schoharie, has been reported upon by the Merchants' Association, while Mr. Freeman considered the Esopus and Schoharie creeks. The supply would be delivered at Park Hill, and its filtration is recommended by the Merchants' Association, and included by them in their estimate of cost. The three streams combined furnish a drainage area of 743 square miles, at elevation sufficient for delivery by gravity, and with a total storage of 85,300,000,000 gallons, are estimated as capable of furnishing 460,000,000 gallons daily. Under the largest plan, the Schoharie supply would be diverted into the Esopus through a tunnel, the combined supply joining in the delivery pipe line at a point about 9 miles from the Olni reservoir on the Esopus, 38 miles from East Durham in the Catskills, and 80 miles from Park Hill; the total length of conduit line would therefore be about 127 miles. The cost of construction is estimated at about \$119,000,000, and cost of delivery at \$28.82 per million gallons. The Esopus and Catskill alone are estimated to have a watershed area of 438 square miles, and with a storage of 45,800,000,000 gallons, to have a capacity for maintaining a daily supply of 250,000,000 gallons. The cost of construction is estimated at about \$60,000,000, and cost per million gallons delivered at \$27.35. The Esopus and Schoharie have an available drainage area of 475 square miles, and are estimated as capable of furnishing 200,000,000 gallons daily. The cost of construction is estimated to range from \$30,000,000 to \$40,000,000, and of delivery from \$18 to \$25 per million gallons. The Esopus and some of the adjacent watersheds were the sources from which the Ramapo Water Company proposed to obtain a supply for New York.

Hudson River.—Two general plans have been investigated by the Merchants' Association for a supply from the Hudson. One of these is based on pumping the supply from the river at Poughkeepsie, and the other in developing a gravity supply from the Adirondacks; under the latter plan two projects were considered, one utilizing the main stream at Hadley and the other the Schroom River. As previously stated, either the Hadley or Poughkeepsie plan is recommended by the Engineering Committee of the Merchants' Association as the most advantageous for New York's supply, while financial reasons point to the latter as preferable. Mr. Freeman also considered this source both at Poughkeepsie and at a point 5 miles below Hadley (Palmer's Falls), but considered its use as less desirable than that of the

Housatonic. The general features of the plans as proposed by the Engineering Committee of the Merchants' Association are as follows:

Schroon River.—The intake dam would be located at Tumblehead Falls, and would have an elevation of 780 ft.; the reservoir would have a storage capacity of 162,200,000,000 gallons, flooding the present Schroon Lake. The watershed area is 518 square miles, which is considered as sufficient to furnish 500,000,000 gallons daily. The delivery would be into Park Hill reservoir, distant 203 miles, the conduit line being located mostly on the west side of the Hudson. The supply would be the purest obtainable, and would not require filtration. The estimated cost of construction for complete development is estimated at \$140,000,000, and the cost per million gallons delivered at \$29.25; for a development of 250,000,000 gallons daily the cost of construction is estimated at about \$70,000,000, and for delivery at about \$30 per million gallons.

Hudson at Hadley.—Under the Hadley scheme the main stream would be tapped at Hadley, 29 miles below Tumblehead Falls, and just below the junction with the Socandaga River, thus securing a watershed area of 2,650 square miles. The reservoir would have an elevation of 550 ft., delivering by gravity into the proposed Park Hill reservoir through a conduit 174 miles long. This supply would be filtered to remove taste and discoloration due to vegetable matter, and storage would be provided to maintain a uniform flow below the intake, and thus not only reduce water-power damages to a minimum, but also avoid interference with Hudson River navigation. It is estimated that to secure a daily supply of 500,000,000 gallons the cost of construction would be \$140,000,000, or the same as the Schroon supply without filtration, and that the cost per million gallons delivered would be \$32.25.

Hudson at Poughkeepsie.—The principal features of the project, as detailed by the engineers of the Merchants' Association, are provision of Adirondack storage in sufficient quantity to equalize the flow at Poughkeepsie, and to avoid danger of drawing salt water, the pumping of the whole supply to basins of sufficient elevation to secure a gravity flow to the required elevation in New York, and filtration. The area of the Hudson River watershed at this point is estimated as 11,800 square miles, the minimum daily flow to avoid danger of brackish water as 2,000,000,000 gallons, and the lowest recorded flow as 1,500,000,000

gallons daily. The Adirondack storage is to be sufficient to secure a minimum flow of 4,700,000,000 gallons daily, thus allowing a daily safe draft at Poughkeepsie of 1,500,000,000 gallons. The aqueduct required would be 63 miles long, and the settling basins would have a capacity of one day's supply. The cost of construction to secure a daily supply of 250,000,000 gallons delivered at New York at an elevation of 260 ft., is estimated at about \$40,000,000, and delivered at an elevation of 131.5 ft. (corresponding to the new reservoir at Jerome Park) at about \$37,000,000, while the cost per million gallons delivered would be \$33.88 and \$28.33, respectively. To deliver a supply of 500,000,000 gallons daily, one-half at the higher elevation and the other half at the lower, the cost of construction would be about \$72,000,000 and the cost per million gallons delivered about \$30.39.

In favor of this project the Engineering Committee point out the following advantages:

1. The largest available supply of water short of the Great Lakes.
2. A water practically as soft as the Croton supply, the purity of which can be controlled by filtration.
3. A supply capable of being gradually increased with the growth of the city, to the extent of over 1,500,000,000 gallons daily.
4. The incidental creation of a large water power in the Hudson River Valley.

The Kings County Medical Society, Brooklyn, September 18, 1900.

TUBERCULOSIS OF THE BLADDER.

BY HOMER E. FRASER, B.S., M.D.

Read before the Medical Society of the County of Kings.

Infection of the bladder by tubercle bacilli is not an uncommon occurrence. It may occur at any age, but usually in early adult life.

Tuberculosis of the bladder is either primary or secondary. Primary tuberculosis is the more rare, because the uninjured epithelium of the bladder is a barrier against tubercular infection. Should the mucous membrane be the seat of chronic gonorrhea, eroded by vesical calculi, torn by instrumentation, or congested and abraded by ammoniacal urine, this barrier is broken down and the bladder wall becomes the seat of tubercular process. Secondary infection is due to a tubercular focus elsewhere, and the bacilli are conveyed to the bladder by the blood or lymph currents. It may also be due to a tubercular process in the pelvis of the kidney descending along the ureter, or it may be caused by direct extension from the prostate and seminal vesicles.

Pathological Changes.—The disease always begins around the vesico-urethral orifice, the trigone or the ureteral openings.

True tubercular cystitis does not long exist alone, but is complicated by the action of other germs and ammoniacal decomposition of urine.

The cystoscope shows minute papules, small ulcerations, and, later, irregular shaped ulcers covered with deposits of pus, urinary salts and necrosed tissue. At times the ulcers may be the seat of excessive granulations which bleed easily.

The walls of the bladder, in places, become hard and thick, and in other places soft and thin. The capacity of the bladder is much diminished, at times not holding more than an ounce or two. The tissue surrounding the base of the bladder becomes thickened and filled with abscesses which break down and form fistulæ.

Symptoms.—In the beginning, the only symptom of the disease may be frequency of micturition. Occasionally the first

indication may be the passage of blood at the end of the act of urination. At times there is dull pain over the pubes. The patient usually complains of weakness of the knees or of aching sensation just above the knees on the anterior part of the legs. Sooner or later the bladder becomes infected with pyogenic germs, and you have symptoms of suppurative cystitis, with frequent and painful urination, pyuria ending in pyelitis. As the disease advances the capacity of the bladder is much diminished in size and dilatability. There is constant desire to urinate, accompanied by agonizing pain in the deep urethra. The patient's condition is pitiful. He has rest neither day nor night until he is worn out, and dies of exhaustion and septic poisoning.

Diagnosis.—It is of the most importance that an early diagnosis should be made.

Any case of cystitis that begins either without apparent cause, or persists in spite of treatment, especially in a young person, should be examined for tuberculosis. Repeated microscopical examinations should be made of the centrifugalized deposits of urine, freshly passed, for tubercular bacilli. If none should be found, some of the deposit can be injected into the abdomen of a guinea pig, and after four weeks examination should be made for tubercular bacilli in the lymph glands.

Before passing any instrument into the bladder in any case of cystitis or suspected stone, an examination of the prostate, seminal vesicles and epididymis should be made to discover whether there is tubercular involvement.

An instrument should never be passed into a tubercular bladder which is not already infected with pyogenic germs, unless one is satisfied that the disease is primary to the bladder and is prepared for immediate operation. It is impossible to render the urethra absolutely sterile, and instrumentation is liable to infect the tubercular bladder. This having been accomplished can never be undone, and much injury has been done the patient.

With an infected bladder the cystoscope is of the utmost value in determining the location and extent of the disease. With the catheterizing cystoscope it can be ascertained whether the kidneys are involved.

Prognosis.—Prognosis is always grave. Many of these cases live for years with no perceptible advancement of the disease, and a few recover. In a large number of cases there is a previous pus infection of the bladder due to diseased prostatic crypts or seminal vesicles, the result of gonorrhea. Such cases are

complicated with pyogenic infection from the beginning, and the progress of the case is rapid.

Treatment.—In every case of tubercular cystitis, whether primary or secondary, constitutional treatment is of the utmost importance. The earlier the diagnosis is made the better the outlook for the disease becoming stamped out or rendered quiescent.

Outdoor life in a suitable climate, long sea voyages, often work wonders in incipient cases.

The nourishment should be looked after and anti-tubercular treatment given, such as creosote, guaiacol, and cod-liver oil.

After the bladder has become infected with pyogenic germs and there is considerable contraction and thickening, with involvement of the genital organs, this plan of treatment is not nearly as successful.

Local treatment, as a rule, is harmful, and should never be undertaken when the bladder is not infected with pus. Even with an infected bladder it is doubtful whether local treatment is of any value, because the deposits are not reached on account of the covering of pus, urinary salts, and necrosed tissue. There is always the danger of dilating a contracted bladder and thus increasing the inflammation or perhaps rupturing the weakened walls.

Among the remedies that have been suggested are iodoform and glycerine. An ounce of this 10 per cent. solution injected daily into the bladder has in my hands produced no beneficial results. A 20 per cent. solution of guaiacol in olive oil has been recommended, one or two drachms daily injected into the bladder. Nitrate of silver solution, which is so beneficial in chronic cystitis, should never be used in a tubercular bladder, as it sets up a violent reaction. Indeed, this reaction is so characteristic that its use has been suggested as a means of diagnosis for tubercular bladder.

Of late, instillations, every other day, of one or two drachms of a 1-5,000 solution of bichloride of mercury, increasing in strength to 1-2,000 as tolerance is established, has been recommended. This in some cases, where there is a severe cystitis accompanied with considerable tenesmus, lessens the amount of pus and alleviates in a degree the tenesmus. This is probably due to the checking of the pus infection rather than to any specific action on the tubercular process.

Operative procedure in tuberculosis of the bladder is limited.

because the primary disease of the bladder is often overlooked or the symptoms are not sufficiently troublesome to cause the patient to seek medical advice, and the case does not come under the surgeon's eye until there is secondary involvement of the genital organs.

In cases where constitutional treatment has been given a fair trial and failed, operative treatment can be resorted to in selected cases, with considerable success.

When the bladder alone is the seat of primary tuberculosis, or complicated with involvement of such parts of the genital system as are operable, such as the testicle, epididymis or small deposits in the prostate, operative procedure can be undertaken.

Suprapubic cystotomy should be done and the diseased portion of the bladder curetted or cauterized and iodoform powder thoroughly rubbed into the wounds. The bladder should be drained through the suprapubic opening until the wounds have healed.

When there is involvement of the prostate and seminal vesicles operative treatment has not proved beneficial.

There have been reported successful cases of enucleation of the prostate and dissecting out of the seminal vesicles, but one who has examined a large number of these advanced cases knows that the whole base of the bladder is infiltrated with disease, and operative treatment out of the question.

As a palliative measure in advanced cases, where the capacity of the bladder has been diminished to an ounce or two or there is obstruction to the flow of the urine, with tenesmus, drainage may be considered. Where possible suprapubic drainage is always preferable.

In conclusion, we find that tuberculosis of the bladder is a serious disease, insidious in its onset, and when complicated with pyogenic infection the percentage of recoveries is small. That the uncomplicated cases may remain quiescent for years, and many recover under suitable climatic conditions. That operative procedure is limited and as a rule unsatisfactory.

SERUM THERAPY IN STREPTOCOCCAL INJECTION.

BY EARL H. MAYNE, M.D.

Before giving the details of these cases it will be of interest to briefly refer to the report of the committee appointed by the American Gynecological Society in 1898 to investigate the use of antistreptococcal serum in puerperal fever.

In this report I find that from February, 1895 (the date when Marmorek first announced his discovery to the world) to April, 1899, it had been used in 352 recorded cases of puerperal fever, by numerous observers, with a mortality of 20.74 per cent.

In only 101 cases was a bacteriological examination made and the clinical diagnosis confirmed; of this number 33 died—a mortality of 33 per cent.

In 251 cases a clinical diagnosis only was made; of this number 40 died—a mortality of 15.85 per cent.

During the three years previous to this report, Dr. Williams, one of the Committee, treated 91 cases of puerperal fever where the temperature reached 101° F. and over, in all of which cultures were carefully made and examined bacteriologically. In only 23 cases—25 per cent.—were streptococci found either in pure culture or associated with other organisms.

In 296 similar examinations Krönig found only 19 per cent. in which streptococci were associated.

Applying Dr. Williams' findings to the 251 cases, 63 would represent the number in which streptococcal infection existed, leaving 188 cases, or more than half of those treated by this method, in which the fever was due to other organisms, and where the serum theoretically would have no beneficial effect.

There is little doubt that the streptococcus is the chief factor in puerperal infection, that its toxins produce the greatest amount of septicemia relative to the degree of local trouble, and that it is therefore the poison to be most feared and most vigorously combated. The organisms most frequently found associated with the streptococcus in this affection are the staphylococcus and bacillus coli communis, each being capable under favorable conditions of producing death.

When considering the employment of this serum, it is of the greatest importance in all cases to ascertain bacteriologically if streptococci be present; although in desperate cases I would not wait until streptococci had been found, as too much valuable time would be lost, but would use it at once, pending the bacteriological examination and be guided by the findings in continuing its use. Under any condition it should not be used to the exclusion of old and tried methods, but as an adjunct to them.

It is only by most careful observations in those cases where the streptococcus is a known factor that the true value and indications for the use of this remedy can be determined. Certainly in all cases where our clinical diagnosis has been confirmed bacteriologically, it is my humble opinion that we should give our patients the benefit of this remedial measure.

Dangers—abscesses at the seat of inoculation, collapse, marked depression, cutaneous eruptions, painful swelling about the joints, etc.—have all been reported, but are probably due to faulty preparation or preservation, and not to the serum itself.

One observer, Dr. Wallich, used the serum in 400 cases without unfavorable results.

Duration of immunity after its use, quantity to be used in a given case, dosage, and frequency of administration are questions not yet definitely determined.

The initial dose is from 10 c.c. to 20 c.c. and the subsequent doses 5 c.c. to 10 c.c. every twelve or twenty-four hours. The largest quantity used in any one of my own cases was 100 c.c., the smallest quantity 20 c.c., not more than 20 c.c. being given in any twenty-four hours.

Since the time of the report referred to a good many successful cases have been recorded, in which the serum was used, and where the observers have felt confident that it contributed largely to the favorable results obtained.

Any careful student of these cases must be led to a similar conclusion.

In erysipelas this serum has been used with excellent results. Up to 1899, in 501 cases where it had been employed the mortality was 2.59 per cent.; in 400 cases without the serum, 3.79 per cent.

It is not alone the reduction in mortality that this remedy has accomplished, but the great saving in time, the lessened pain, and the shortened convalescence.

With this brief résumé, I beg to report the following cases:

CASE I.—*Labor at term, retention of entire placenta for five days; streptococci in pure culture; serum injection; recovery.*

E. H., American, married, aged 35, primipara, good general condition. Labor began Dec. 13, 1899, 2 A. M., in charge of female homeopathist; head reached perineum in twenty-four hours, child delivered dead, without forceps, thirty-six hours after labor began. Frequent digital examinations made previous to delivery. Four hours after delivery of fetus, pains having failed to come on, an attempt was made to deliver the secundines. Only the cord and membranes, together with much clotted blood, were obtained, although the attending physician stated that the uterine contents were completely removed. Specimen preserved by nurse in jar, which I present.

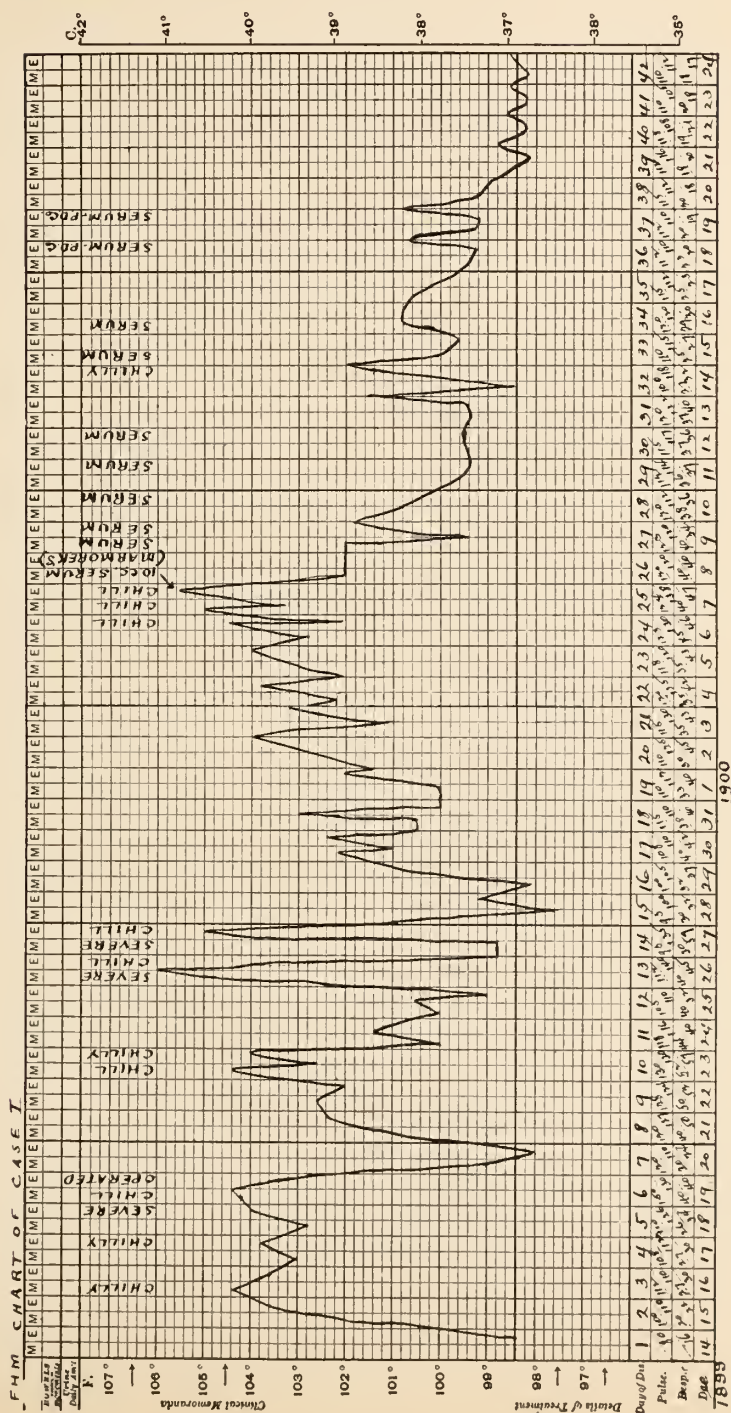
December 15th, 9 A. M., patient complained of feeling chilly, T. 102, P. 120, R. 24.

December 16th, 7 A. M., slight chill occurred: profuse, bloody discharge present, with marked offensive odor. T. 103, P. 130, R. 30.

Dec. 17th, 2 P. M., severe chill occurred, lasting twenty minutes. Very offensive discharge and profuse flow. T. 103.8, P. 135, R. 34. Slight cough developed. From this time to December 19th the temperature remained near the 104° mark, the flow being more profuse, and the odor more offensive. At 7 A. M. on that date I first saw the patient, just as she was recovering from a hard chill. Examination showed uterus well above umbilicus, evidently from its size containing placental tissue; most offensive, black, profuse discharge present; moderate perineal laceration; the entire mucous membrane of the labia, vagina, and cervix covered with a dirty greenish false membrane varying from one-sixteenth to one-eighth of an inch in thickness.

Examination of chest revealed pneumonic patches over lower half of right lung, and a decided endocardial inflammation. A well marked cough was evident. T. 104, P. 140, R. 40.

At 11.30 A. M. patient was placed on the table in a very cyanotic condition, and nearly pulseless, and after vigorous hypodermic stimulation was etherized. The parts being carefully scrubbed, the false membrane was treated with tincture of iodine, and then the contents of the uterus entirely removed with the placental forceps and large, dull curette; cavity flushed with six litres of normal saline and packed with 10 per cent. iodoform gauze.



I present the material removed from the uterus. It comprises the entire secundines with the exception of the cord and chorionic membrane, and weighs fourteen ounces.

December 20th, vaginal packing removed and iodine again applied. Temperature reached normal, and remained so for twelve hours.

December 21st, uterine packing removed; cavity douched with six litres saline and repacked with borated gauze; iodine applied to false membrane, which had nearly disappeared. It was hoped by packing the uterus to keep it free from infection. On this day the respirations suddenly increased to 44, and the temperature rose rapidly to 102. It was found that more lung tissue was involved by septic pneumonia.

December 22nd, false membrane not visible to eye, iodine applied, uterine packing removed, and cavity not repacked. Cough severe; profuse, stringy mucus expectorated. Two per cent. lysol vaginal douches every two hours. T. 102.6, P. 130, R. 54.

December 23rd, T. 104.5, P. 130, R. 57. From this time to December 25th the temperature gradually fell to normal, cough lessened and lung cleared up.

December 26th, a vigorous growth of false membrane again appeared on the vaginal mucous membrane in spite of the fact that iodine had been applied once daily, and two per cent. lysol vaginal douches given every two hours. At 2 P. M. a severe chill occurred, the temperature rose to 106, and it was evident that the endometrium was involved. On the 27th there was a recurrence of chill, the temperature rose to 105, and the presence of false membrane could be seen on the inner surface of the cervix as high as the internal os. Iodine was applied freely to the uterine cavity. This appeared to check the growth on the surface, and the temperature remained nearly normal for forty-eight hours, when, despite daily intra-uterine lysol irrigations and the application of iodine to the uterine cavity and vaginal mucous membrane, the temperature continued to rise and the exudate again formed on the vaginal and labial mucous membrane. The uterus became very large and flabby, bled easily, chills occurred frequently, there was profuse perspiration, uncontrollable insomnia, delirium, the pulse became very weak and intermittent, respirations rapid and shallow, and in fact the general condition of the patient was alarming.

On January 6th a culture was made from the false membrane covering the cervix which showed a pure streptococcus infection.

On January 7th the temperature reached 105, and although I had been advised not to use the streptococcus serum, because the statistics after its use were no better than without it, I administered 10 c.c. Marmorek's, at the same time discontinuing all antiseptic applications to the genital tract.

Beneficial effects from the serum were noticeable in eighteen hours when the visible membrane ceased spreading, the temperature began to fall and the restlessness and delirium lessened.

January 8th, 10 c.c. same serum was given. T. 102.2, P. 120, R. 38.

January 9th, T. 101, P. 166, R. 34. Patient slept without medicines and felt decidedly improved. Serum used on this date.

January 10th, 11th, and 12th, 10 c.c. given daily, when temperature reached 99.

I then discontinued the serum; thirty-six hours later the temperature reached 102; in twenty-four more it was 103, accompanied by slight chill. I again administered 40 c.c. of the serum in the succeeding six days, when the temperature reached normal, where it has since remained.

After beginning the serum injections pieces of false membrane fully one-eighth of an inch in thickness and from one-eighth to one inch in diameter were discharged from the uterine cavity in great quantities [specimens exhibited]; the vaginal false membrane gradually disappeared.

The depth of the uterus diminished from five and a half to three inches and a considerable exudation which was present in the cul-de-sac and about the broad ligaments entirely disappeared, leaving both uterus and adnexa apparently normal. In fact the changes wrought by the serum were truly wonderful.

One hundred c.c. was the total amount of serum used, 80 c.c. being Marmorek's, from which no reaction was noticeable after use; the other 20 c.c. that of Parke, Davis & Co., which produced after each injection a decided reaction—a rise of temperature of two degrees, painful inflammation at the site of inoculation, considerable erythema, pains in the joints, and a general soreness in the muscles.

The general treatment consisted in the use of cardiac tonics and stimulants, alcohol in considerable quantities, sponge-bathing, flushing the colon daily, and large quantities of pure water. The diet was principally of milk, though meat and vegetable juices were also taken.

CASE II.—*Septicemia*.

Mrs. S., 24 years old, American, nullipara. First saw patient January 23, 1900, and obtained the following history:

Had always menstruated regularly, four days; no pain; had suffered from copious leucorrhea for several years, otherwise enjoying good health. For past four months had been treated locally for leucorrhea without beneficial result. On January 16, 1900, five days after last menstruation ceased, a medicated bougie was introduced into the uterus; this was followed in twenty-four hours by a bloody lochia, pain, fever, and chilly sensations, these symptoms continuing and being still present when I first saw patient.

Hot, antiseptic vaginal douches, ergot, quinine and strychnine were given, together with the other usual remedies, in spite of which the blood lochia persisted, the fever reached 104°, chills continued, and a gradually increasing mass appeared in the cul-de-sac and left broad ligament, which reached the size of an orange.

At this time, January 29th, a bacteriological examination of the uterine discharge showed streptococci together with staphylococci.

Ten c.c. Marmorek's serum was administered daily for five days in addition to the general treatment. The mass about the uterus gradually disappeared without suppuration, the lochia ceased, fever and chills subsided, and the patient made an uninterrupted recovery.

It is my firm belief that without the serum this mass would have suppurated, and free incision have been necessary.

CASE III.—*Erysipelas*.

W. W. S., male, aged 56, American. Taken with a chill 10 A. M., March 26, 1900; temperature rose rapidly to 103; pain, slight swelling and redness behind right ear. Usual remedies of ichthyol, quinine, and tincture of iron employed. March 27th, 10 A. M., temperature 104, pulse 48, weak and very intermittent (patient victim of marked cardiac disease); erysipelas involving half of right cheek. At 6 P. M., temperature 105, delirium, entire right cheek and forehead involved.

At 10 P. M., 10 c.c. Marmorek's serum used; twelve hours later, temperature had dropped to 102, pulse 60, stronger, less intermittent, delirium absent. At this time exactly half of the entire face was involved; after this time the inflammation stopped advancing and began to fall.

The serum was again used—10 c.c. Following second injection temperature gradually fell in twenty-four hours to normal, and remained so; the inflammation quickly subsided, and the patient made an interrupted recovery, resuming his work in one week from the initial use of the serum.

This patient had had two previous attacks of facial erysipelas treated without this serum, one keeping him from business four weeks, the other six weeks.

CASE IV.—*Erysipelas*.

W. J. W., aged 40, Irish. At 8 A. M., July 1, 1900, taken with slight chill, severe headache, and pain in right nasal region. Saw patient twelve hours later; temperature 103, pain, redness, and swelling present at right side of nose. Usual remedies prescribed. At 11 A. M., July 2nd, temperature 103.5; right cheek, eye, and forehead involved.

At 4 P. M., 10 c.c. Marmorek's serum was used, when the temperature had reached 104, and the inflammation was steadily advancing; 24 hours later 10 c.c. serum again used. From this time the swelling, redness, pain, and fever subsided rapidly and recovery was complete and uninterrupted, the patient returning to his work one week from the initial chill.

CASE V.—*Erysipelas*.

C. S., male, American. June 2, 1900, experienced severe chill; ten hours later temperature 104; well marked erysipelas involving face in front of left ear. June 3rd, left eye closed, cheek and forehead involved, temperature 104.5. Ten c.c. Marmorek's serum used. June 4th, 10 A. M., 10 c.c. again used. No advance of inflammation after second injection; pain, swelling, redness and fever subsided as if by magic, and the man went back to work seven days after the beginning of the attack.

Fifteen months previous to this date, patient had an attack of facial erysipelas which kept him confined to his room for twenty-eight days, and from his work for two weeks longer.

As I have already occupied more than the allotted time, I can but refer to three other cases of erysipelas in which I used this serum; in each one the result was magical, the patient resuming his duties after a few days, in each case.

I have also used this remedy in two cases of virulent scarlet fever where the anginal involvement was unusually severe and where the usual remedies had failed to give the desired relief. While the results were not so brilliant as in the other cases, I

am convinced that this treatment contributed materially to the recovery of these patients.

In these ten cases 44 injections of 10 c.c. each were used, and in no instance were any untoward effects observed except as noted in Case I.

DISCUSSION.

A. T. Bristow: Mr. President and gentlemen: Some two years ago I gave this matter considerable attention, both with reference to the literature of the subject and in using the remedy myself, and I was attracted to the remedy because it was well known that the antitoxine of diphtheria has worked wonderful results.

Now it is not, however, a parallel case to suppose that because cells are able to produce an immunizing serum in cases of diphtheria, of scarlet fever and in the zymotic diseases generally, that we are to suppose them able to create an immunizing serum in the streptococcic infection. There is a vast difference between the behavior of the pus organisms and the streptococcus in the human body and that of the organisms which produce zymotic disease. In the zymotic diseases one attack seems to give immunity against a second, but we do not in the same way get immunity from suppuration. One suppurative process does not confer immunity against a second infection. There is not even immunity of a day or two, neither does one attack of erysipelas confer immunity from a second attack. Witness those cases of elephantiasis of the lower extremity which are the result of chronic lymphangitis induced by recurring erysipelas. The body cells cannot bring about immunity in the organism as against suppuration nor the streptococcus of Fehleisen. Now, if that be so, how then, if we cannot produce a serum in our own bodies which shall protect us against these infections, are we to expect that we shall produce a serum in animals which shall protect us?

Then there is another objection, to my mind a very serious objection, to the admission of evidence of immunity produced by the serum of Marmorek, and that is this; that no one interested in the manufacture of this serum nor the most careful observers in laboratories where the best methods are used have as yet been able to standardize the serum. What does that mean? It simply means that they cannot take any given serum which they produce and say so many units of this serum will protect so many kilograms of animal against the disease.

I was prejudiced entirely in favor of this serum when I began to use it and at first I thought I got results, but as I investigated the matter more closely I became more and more pessimistic and have now abandoned it entirely.

I had in the year during which I used this serum, a number of very severe infections of the forearm and I used it very liberally. I never saw any bad results from the serum, only once or twice a transitory erythema, and it is true the temperature went down after its administration, but unless I evacuated every pocket of pus that was in the affected arm the process continued; in other words, the necessity of drainage was just as great under the use of the serum as without. Now, here comes in a very practical application to this very question of the use of the serum in these cases of puerperal fever. Every case which gets up a high temperature after the puerperium is not necessarily streptococcus infection, nor to my mind is it at all clear that simply because an observer can see under his microscope cocci in chains, that these are necessarily the streptococci of Fehleisen. All bacteriologists know that there are many varieties of the streptococcus, and I doubt whether any bacteriologist would be willing to make a diagnosis simply on the microscopic findings alone. I certainly should not.

The point I want to make with regard to these uterine cases is this, namely, that the worst cases are those in which there has been a septic metritis and as a result a uterus whose walls are filled with multiple abscesses. Of what use is streptococcic serum in such cases. From my own observation in cases of cellulitis, none at all; even Marmorek himself in his first reports made the statement that while the streptococcus serum might prevent the extension of the process in a case of cellulitis, nevertheless the pus would have to be evacuated. That is just as true of the uterus as it is of any other organ in the body, and consequently if you have a uterus which has been riddled with multiple abscesses, one would not expect to get any results whatever from the use of the serum. The same principle of surgery applies there which does everywhere else in virulent collections of pus in the body; that is, to secure drainage. The only method of securing drainage in these cases is by hysterectomy, but while there have been good results in a few cases, the difficulty with a hysterectomy in these cases is that the patient is unable to stand an operation of such severity.

The doctor spoke about the bad odor of the discharge in one or

two of his cases. Dr. Williams of Johns Hopkins, in his observations on puerperal fever, states that the cases which have a bad odor are usually cases in which putrefactive and saprophytic organisms exist, and not as a rule cases of streptococcic infection and that they almost always do well with irrigation and ordinary drainage.

It has seemed to me that in the ordinary cases of erysipelas the use of the serum has been beneficial. After mature reflection and some considerable observation, those are the only class of cases in which I think it really worth while to use the serum, yet I have known one case of erysipelas which was not benefited by the use of the serum although given in very large doses. It is, as I said before, entirely harmless. At the time I used it I collected statistics on this subject and made a record of over 1,000 cases in which the serum had been used and only three cases of death occurred within any reasonable time of the administration of the serum, and the deaths bore no relation whatever to the serum itself.

Now, I do not wish to discourage the use of any new remedy; at the same time I think it would be unwise for us to place reliance on something which was not worthy of our confidence, and after a good deal of experience with this serum I have been obliged to come to the opinion that it is really of very little use, except possibly in cases of erysipelas.

The President: Another gentleman who has had a large experience with this remedy is Dr. Fowler.

Dr. George R. Fowler: When the Marmorek serum was first brought forward as a specific for septic conditions supposed to depend upon the presence of streptococcus infection I welcomed it, inasmuch as at that time a large proportion of my work consisted in dealing with septic conditions of the peritoneal cavity following perforative appendicitis. When the operative procedure disclosed the undoubted existence of a diffuse septic peritonitis, it would seem that, in this class of cases at least, the persistent and systematic and conscientious use of the serum and a careful note of the results would put us in a position to form a rather accurate judgment as to the benefits to be derived from its use. I regret very much to say, however, that I was exceedingly disappointed. At the commencement I was impressed favorably with some apparently successful cases; but when I came to investigate the matter closely—I am speaking now almost entirely from a

clinical standpoint—it was soon apparent that the other measures of treatment taken in connection with the use of the serum itself, in all probability had as much to do with the good results as the serum. In watching carefully the clinical records, for instance, during the time that the serum was used, it would appear that the most varying conditions arose after the use of the serum, precisely as these arise in the case of almost any diffuse septic peritonitis. One would suppose, if especial benefit was to be derived from the use of the serum, that variations of temperature and pulse rate and general condition of the patient, even after taking into account the difference in cases, would present some sort of uniformity. This, however, proved not to be the case. For instance, in the matter of temperature it was found that this would be elevated or lowered without any reference to the time of giving the serum; that in some instances a decided lowering of the temperature followed the injection of the serum, and in other cases a decided increase of temperature followed it. This was also true of the pulse rate. So, that with these two signals before us and these constantly varying, sometimes flashing across our pathway a ray of hope, and again plunging us into absolute despair, it seemed as if the serum was an entirely indifferent factor in the after history of the case. About twenty cases were submitted, all cases of septic peritonitis, to this treatment. Some of these recovered and others died; but in comparing these twenty cases of similar character it was found that the mortality was almost the same. I may say that, after abandoning entirely the use of the serum and improving still further the use of the other measures of treatment in diffuse septic peritonitis, the mortality has steadily lessened. At one time I thought that even in the cases of those who died after the use of the serum, their lives were prolonged. I remember one of my hospital internes occasionally said to me under these circumstances, "We came very near saving the patient's life." "Well, we did not save the patient's life, and I must confess that, in the rather extended trial that I have given of the method, I cannot to-day conscientiously say that a single case recovered because of the serum. I would hesitate a good while, however, before saying that any case recovered in spite of the serum. I have never seen any harm result from its use, even in very large doses, and I have given 25 c.c. of the serum four times in twenty-four hours. I remember in one case this was kept

up until 400 c.c. of the serum were used. This case presented no features of a character to be attributed to the use of the serum itself, nor on the other hand was there any positive benefit derived.

I fail to conceive just how the serum could have any effect on the local septic processes. While my experience in puerperal fever and in septic conditions occurring during the puerperium generally is nil. I fail to appreciate the precise line of argument which would attribute the casting off of the fibrinous products of the septic inflammation from the lining of the uterus or from the vaginal canal as due to the use of the serum, taken up as it is entirely by the general circulation. My recollection of Marmorek's observations is that it was intended and believed to solely and entirely control the general septic condition, the result of the absorption of the toxins. Dr. Wilson made a large number of examinations for me a number of years ago in connection with cases of septic peritonitis which occurred following perforative appendicitis; my recollection is that in not a single one of them was a pure culture of any one organism obtained, and it may be in this class of cases, namely, diffuse septic peritonitis, the result of infection from the intestinal canal itself, the serum is not given a fair and proper trial. Here the bacterium *communi coli*, the staphylococci, and the bacillus *pyogenes foetidus* and a number of other organisms in addition to the streptococcus are found in the fluid and exudate from the peritoneal cavity were found. In no instance was there a pure streptococcus culture. It may be that benefit has been derived in cases where a pure streptococcus infection exists, and that such results cannot be obtained where a mixed infection is present, particularly if the mixed infection is of a character to destroy the patient; because we all know that in cases of fatal diffuse septic peritonitis there need not necessarily be present any streptococcic infection whatever.

While I do not wish to unqualifiedly condemn the use of the serum under conditions of pure streptococcus infection, as for instance in erysipelatous inflammation, and would consent to its use and perhaps advise it in these instances, I cannot with any degree of confidence expect beneficial results to follow its use in the class of cases with which I am most familiar, and with which my experience has been the greatest.

Dr. Mayne: Dr. Bristow referred to the odor (mentioned

in Case I.) as not characteristic in pure streptococcal infection. This odor was present previous to the removal of the retained secundines and not afterward. The bacteriological examination was made from the false membrane covering the endometrium, two weeks after the secundines were removed. The persistent reappearance of the false membrane on the same areas after its apparent removal by the action of iodine, and its spread to new areas, was most discouraging.

After the first injection of serum all local treatment was stopped except saline douches. The action of the serum on the false membrane was comparable to the antitoxin in cases of diphtheria.

Regarding the exfoliation of the false membrane, to which Dr. Fowler referred, I can only say that it began to separate and come away within thirty-six hours after the first injection of serum, and continued until the endometrium and vaginal mucous membrane were free from it.

Recent observations have proved that very large quantities of properly prepared serum can safely be used where streptococcal infection really exists, without lessening the patient's chances and with the strong probability of removing that poison from the system.

One of the most striking cases showing the beneficial effects of the serum is that reported by Norris, *American Journal of Obstetrics*, Vol. XXXV., No. 5, 1897.

HISTORICAL DEPARTMENT.

FREDERICK CORNELL DEMUND, A.B., M.D.

As we look around us and note how, one after another of the older physicians are called upon to complete their life work among us, men who are held in high esteem among those to whom, for a number of years, they have been as a friend and physician, giving advice in their troubles and aid in their sickness, and then to think in a short time it is all over and only too soon to be forgotten; but such is human nature.

Dr. DeMund practised the healing art in what would be called the country of Brooklyn, during forty-five years of his professional life, honored and respected by all.

Born in Millstone, Somerset County, N. J., March 25, 1830, and died at New Utrecht, L. I., November 22, 1900. His father was the Rev. Isaac S. DeMund, D.D., of New Jersey, and connected with the Reformed Church. His mother, Margaretta Frelinghuysen Cornell, also of New Jersey.

His early education was received in private schools and the New York University, graduating A.B. from Rutgers College in the class of 1851, after which he matriculated with the College of Physicians and Surgeons, New York, receiving the degree of M.D. in 1855. From this time until his death he was in private practise in the town of New Utrecht. During his professional life he held the positions of health officer, school and sewer commissioner of New Utrecht.

In 1859 he became a member of the Medical Society County of Kings, and retained his membership until 1899, when he retired. He was also an active member of the New Utrecht Reformed Church.

He married Miss Phœbe Emmons, of New Utrecht, on November 7, 1860. His children are John E. DeMund, M.D., and Marie Louis, wife of Daniel Van Brunt Hegeman.

WILLIAM SCHROEDER, M.D.,

Sec. of Hist. Com.



DANIEL AYRES, A.M., M.D., LL.D.

JAMES BERNARD BUSTEED, M.D.

Again we are called upon to record the life work of one young in years, full of ambition—one who felt himself called upon not alone to look after the material defects of our nature, but to assist in guiding those who needed moral and spiritual assistance to make this world better, and to point to a bright and glorious hereafter.

Born in Boston, Mass., August 11, 1869, his father was John Bernard Busteed and his mother Sarah Ann Furnace. On August 9, 1894, Dr. Busteed married Georgena Spears, of this city. Two children were the result of this union, John Robert and Ruth Busteed.

He was graduated from the College of Physicians and Surgeons, New York, in 1892, and was a member of the Medical Society County of Kings from 1898 to 1901. In 1893 he was appointed medical missionary to Korea, under the Methodist Episcopal Church, and remained until 1897, when he returned to Brooklyn and began the practise of medicine, remaining until his death, March 11, 1901.

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

DANIEL AYRES, A.B., M.D., LL.D.

All that would go to make up a physician of the old school was embodied in the person and character of the subject of this sketch. Full of life and ambition, and interested in all that tended to elevate the medical profession. Born in Jamaica, Long Island, October 6, 1822, and died in Brooklyn, N. Y., January 18, 1892. His father was Daniel Ayres and his mother Anna Morgan, both of New York.

Dr. Ayres was educated at Dr. D. H. Clase's Academy, Connecticut, and graduated A.B. from Princeton University in 1842, Wesleyan University conferring the degree of LL.D. in 1856.

He began the study of medicine in 1842, under the direction of David M. Reese, M.D., and Valentine Mott, M.D., LL.D., and

matriculated in the Castleton Medical College, Vermont, graduating M.D. from the University City of New York in 1845.

During the years 1844-45 he was interne in Bellevue Hospital and Charity Hospital, entering upon private practise in the City of Brooklyn in 1846, remaining during his entire professional life.

In 1848 he was surgeon of the Fifth Brigade, Thirteenth and Fourteenth Regiments, New York, and from 1861-65 surgeon of the New York Volunteers.

From 1846-53 surgeon to the Brooklyn Hospital, and again in 1892; from 1864-70 visiting surgeon St. Peter's Hospital and consulting surgeon from 1870-1892. In connection with Louis Bauer, M.D., P.R.S., and John Byrne, M.D., LL.D., in 1858 he organized the Long Island College Hospital. Of this institution he was the first professor of surgery, during the years 1858-59, emeritus professor of surgical pathology and clinical surgery in the same from 1874-92.

His connection with medical societies were as follows: 1845-92, the Medical Society County of Kings; 1856-66, Brooklyn Medico-Chirurgical Society, of which he was president during the years 1861-62-63; New York Academy of Medicine, New York Pathological Society, American Medical Association, Medical Society of Berlin, Germany; honorary member of the Alumni Association, L. I. C. H.

His medical papers were as follows: In 1852, "Reduction of Dislocation of the Cervical Vertebrae," "Successful Treatment of Tetanus," "Case of Membranous Croup," "Operation for Artificial Anus," "Trepanning the Skull for Reflex Epilepsy"; 1857, "Contributions to Surgery"; 1859, "Exstrophy of the Bladder"; 1881, "Lymphomata in the Anterior Mediastinum," "Reminiscences of Tracheotomy, Croup and Diphtheria."

Dr. Ayres married Miss Charlotta Augusta Russell, of Portland, Conn., October 6, 1849. His two sons, H. Messenger Ayres, M.D., and Morgan Ayres, M.D., are still in active practise. They presented to the Hoagland Laboratory the pathological collection of specimens belonging to their father, to which he had also given the sum of \$10,000.

WILLIAM SCHROEDER, M.D.,

Sec. of Hist. Com.



JOHN HENRY HOBART BURGE, M.D.

JOHN HENRY HOBART BURGE.

To call one a friend requires many years of association, and then sometimes we feel that we have made a mistake. Not so with our former colleague—a friendship once established continued during life. The writer has had ample evidence of this kindly and benevolent disposition on the part of our late friend Dr. Burge, ever ready to assist those who looked to him for advice, giving words of encouragement to those upon whom the burden of Life rested with a heavy hand, speaking words of cheer to the more unfortunate members of our profession, ever ready to turn the bright side up when to most of us everything looked dark and hope seemed to have left the human heart. Such a disposition surely had a tendency to prolong life and make everything in this world worth living for. The profession of medicine has been honored by his connection with it, the city of Brooklyn has been benefited by his long and active practise among us. A pioneer in this city in medical societies, who felt that the best good for the profession and the people can only be accomplished by physicians associating together and expressing their views upon matters relating to the practise of the healing art.

Dr. Burge was born in the village of Wickford, North Kingston, Washington County, R. I., August 12, 1823, and died in Brooklyn, N. Y., March 24, 1901. His grandfather was James Burge, a soldier in the Revolutionary War, and his father, the Rev. Lemuel Burge, of Litchfield, Conn.; his mother was Elizabeth Frances Shaw, of Wickford, R. I. Dr. Burge was twice married, his first wife being Mrs. Farran Stuart Stranahan, of New York City, and his second wife Miss Louise Schneider, of Yonkers, N. Y. Four children assisted in making home brighter, Anna Shaw, widow of the late Russell Enger; Marie Louise and Jessie Jay Burge, and the Rev. Frederic William Burge, A.B.

Dr. Burge was educated by his parents, and began the study of medicine at Wickford, R. I., in 1844, under the preceptorship of William Graham, M.D., and William Allen Shaw, M.D., and matriculated with the University of the City of New York, in 1846, receiving the degree of M.D. in 1848. He received special instruction at the old New York Hospital, under the direction of Professors Darling, Aylett, Post, Reid and Watson. During this time he was in practise in the city of New York. In 1849 he made a trip around Cape Horn to California, where, in the city

of Sacramento he established and conducted a hospital until 1850, returning to the city of New York in 1851, remaining in practise until 1855, in which year he came to Brooklyn, where he has remained in the active practise of his profession. He has been connected as physician with the New York Dispensary, 1852-54; Brooklyn Central Dispensary, 1858-63; consulting physician, 1866-76; visiting surgeon Long Island College Hospital, 1863-94, and consulting surgeon to the Long Island College Hospital, 1894-1901; Brooklyn Contagious Disease Hospital, 1863-70; Sheltering Arms Nursery, 1870-1901; St. John's Hospital, 1872-1901; Lucretia Mott Dispensary, 1882-1901.

In 1856 an invitation was extended to a number of physicians to meet at Dr. Burge's office for the purpose of establishing a medical society in this city. The result of this meeting was the organization of the Brooklyn Medico-Chirurgical Society, on November 10, 1856, of which Dr. Burge was president in 1864-65. His membership in the Medical Society County of Kings dates from 1859; assistant secretary, 1860; orator, 1867; censor, 1872-78; vice-president, 1863-69, and president in 1870-71; a member of the Brooklyn Medical Society, 1856-57; Long Island College Hospital Journal Association, 1868-75; president in 1870-71; one of the organizers in 1870 of the Brooklyn Pathological Society, and for nine years a delegate to the American Medical Association; permanent member of the Medical Society State of New York; member of the New York Society of Medical Jurisprudence; the New York Neurological Society, vice-president in 1876, and the Alumni Association of the University City of New York; vice-president in 1896.

He has contributed the following papers:

1868—"Hygienic Influence." Address, the Medical Society County of Kings.

1870—"The Relations between Physicians and Apothecaries."

1884—"Treatment of Fractures of the Patella."

1889—"Remarks on Sulphuric Ether."

1890—"History and Mechanical Treatment of Fractures of the Femur."

1891—"Anesthesia; Apparent Death; Resuscitation."

1891—"Medical Ethics."

1893—"Points of Election in Laparotomy After Wounds of the Abdomen."

New instruments:

1860—Instrument for dilating strictures in the urethra, curved and straight.

1868—Apparatus for the treatment of fractured patella.

1880—Apparatus for the treatment of fractured femur.

1880—Throat forceps.

1880—Obstetrical forceps.

1889—Ether inhaler.

1889—Post-mortem needle.

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

3,500 QUESTIONS ON MEDICAL SUBJECTS, Arranged for Self-Examination.

With the Proper References to Standard Works, in Which the Correct Replies Will Be Found. Third Edition, Enlarged. Philadelphia: P. Blakiston's Son & Co., 1901. 232 l. 16mo. Price: \$0.10.

The medical student should find this little pocket manual a valuable aid in self-examination. The questions are well selected, and cover all the important branches of practical medicine. A feature to be commended is that the replies are not given in the same place with the quiz questions. At the end of the booklet there is appended a list of the questions of the State Examining Boards of New York, Pennsylvania and Illinois.

MANUAL OF THE DISEASES OF CHILDREN. By John Madison Taylor and William H. Wells. Second Edition, Thoroughly Revised and Enlarged. Philadelphia: P. Blakiston's Son & Co., 1901, xvi, 17-859 pp., 1 col. pl. 8vo. Price: Cloth, \$4.50 *net*.

This second edition is larger than that issued in 1898. A number of new chapters and many special articles are added. It is a concise presentation of the whole subject of diseases of children.

THE FEEDING OF INFANTS. Home Guide for Modifying Milk. By Joseph E. Winters, M.D. E. P. Dutton & Co., 1901; pp. 47. Cloth, price 50 cents.

This brochure of Dr. Winters' assumes that, practically, milk is the only food suitable for infants. Most physicians who deal largely with

children have come, we believe, to the same conclusion: how to prepare cow's milk so that it shall resemble human milk, has been a difficult matter. Dr. Winter details methods which have proved serviceable, and are not intricate. But cow's milk, however carefully modified, is of little value, and may be harmful if not sound, wholesome milk to begin with. This, and more, the author teaches in the interesting and valuable book before us.

HYPNOTISM. A Complete System of Method, Application and Use, Prepared for the Self-Instruction of the Medical Profession. By L. W. De Laurence, Instructor at the School of Hypnotism and Suggestive Therapeutics, Pittsburg. Chicago: The Henneberry Co., 415 Dearborn street, 1901. Port. Front., 256 pp., 17 pl., 8vo. Price: Cloth, \$1.50.

The book is one of a pseudo-scientific character, which teaches the profession nothing, and as a popular work does harm by its exaggerated and false statements, claims and impossibilities, based in part on some truths, its chief merit being the methods of application. The make-up of the book is very satisfactory. If the members of the society care to study the subject let them consult Zieber or Kraft-Ebbing.

W. H. HAYNES.

A TEXT-BOOK OF PATHOLOGY. With 372 Illustrations. Third Edition, Revised. By Alfred Stengel, M.D., Professor of Clinical Medicine in the University of Pennsylvania; Physician to the Philadelphia Hospital; Physician to the Children's Hospital, Philadelphia, Etc. Philadelphia and London: W. B. Saunders & Company, 1900. 873 pp., 7 pl. 8vo. Price: Cloth, \$5.00 *net*; half morocco, \$6.00 *net*.

This new edition of Stengel's Pathology shows evidence of careful revision, bringing the subject-matter up to date. Many new headings and subdivisions in display-type have been added, and almost every other page contains several lines of new matter.

One of the many good points in the book is the uniform plan which has been adopted in treating the diseases of each organ. The majority of the illustrations are good, but we would like to see a new cut substituted for the present one of glomerulonephritis. This is somewhat misleading to a student, as the proliferated and desquamated cells are not seen. By comparing, for instance, this cut with those of glomerulonephritis in Gaylord's and Aschoff's "Atlas," the difference is very apparent. We hoped that there would be some attempt at a classification of tumors in this new edition. With our present knowledge of the etiology of tumors no classification could be expected to suit everybody, but, in a book used by students, some classification should be given. The diplococcus intracellularis meningitidis is simply mentioned as the cause of epidemic cerebrospinal meningitis, but no further description is given of

it in the book. Aside from these minor matters the book is one of the best that we have, and can be heartily recommended to practitioners and students of medicine.

ARCHIBALD MURRAY.

DETROIT MEDICAL JOURNAL. Published monthly by The J. F. Hartz Co., Detroit, Mich. Subscription price not stated.

Under the above title, a new monthly journal has been launched in Detroit, edited by Dr. G. Archie Stockwell. In order to insure any kind of success in the already overcrowded field of medical journalism, the promoters of a new journal should have good grounds for supposing that their publication will supply a want.

Although the initial number of the *Detroit Medical Journal*, both in contents and in typographical appearance, hardly is above the average, the publishers state that they have thoroughly canvassed Michigan and Ontario, with results most complimentary in the way of subscriptions and pledges of support. We sincerely trust that the expectations of both editor and proprietors will be realized, and to our new confrère we extend our best wishes for success.

LARYNGEAL PHTHISIS, or, Consumption of the Throat. By Richard Lake, F.R.S.C. With 36 illustrations, 21 of which are colored. Philadelphia: P. Blakiston's Son & Co., 1901. 3 l., 6 col. pl. 8vo. Price: Cloth, \$2.00 *net*.

Dr. Lake's booklet of ninety-four pages contains such a fund of important information that one is forced to regret its brevity. Its appearance just now is most opportune, when both the profession and the laity are giving much thought and study to the prevention of consumption, and this work is educational. It presents concisely the predisposing causes of laryngeal tuberculosis, the concurrent intranasal conditions, the associated lesions and their influence; the symptoms, pathology, treatment and prognosis. The appendix includes twenty illustrations, in color, of characteristic lesions, as shown by patients in the North London Hospital for Consumption. The drawing is lacking in fine detail, and the coloring is decidedly poor. The final pages present an instructive statistical report of 329 cases, showing the special tissues involved, the age and sex of the patients, and the results of treatment.

General internal medication is omitted as being beyond the scope of the book. Treatment of obstructions to respiration are not considered, since in the author's judgment "the nose must be left alone as long as the patient shows signs of phthisis."

Among the many pertinent observations recorded we note the following: "Consumption of the throat is secondary in the majority of instances, but it has been demonstrated beyond cavil that a primary infection of the laryngeal structures may occur and in all probability does occur, far more frequently than by the nature of the proof required we are able to show." "The influence exerted by previous or chronic inflam-

matory conditions in the larynx is all in favor of the occurrence of a secondary infection of the larynx in phthisis pulmonale, through weakening the resistive power of its epithelium and the functions of its glandular elements." In a list of 1,366 cases having this disease, three of the patients were under ten years of age and 937 were between twenty-one and forty years of age. Males are afflicted over twice as often as females. Those persons who work in a dusty atmosphere, and those leading a sedentary or indoor existence, are by far the most prone to infection. Those whose occupation demands use of the voice, as actors and singers, and laborers out of doors, even when exposed to severe climatic conditions, are comparatively free from the disease."

The book has a distinct value, and should be possessed by those interested in this subject.

W. F. DUDLEY.

ESSENTIALS OF THE DISEASES OF CHILDREN, Arranged in the Form of Questions and Answers, Prepared Especially for Students of Medicine. By William M. Powell, M.D. Third Edition, Thoroughly Revised by Alfred Hand, Jr., A.B., M.D. Philadelphia and London: W. B. Saunders & Co., 1901. 259 pp., 12mo. Price: Cloth, \$1.00 *net*. (*Saunders' Question Compends No. 15.*)

A more useful and practical book than this has not come to us in many a day. The additions are numerous, and have brought the volume fully up to date. The practitioner will make no mistake if he obtains it and reads every word of it. The directions as to handling and dosing infants are amusing on account of the detail. They are not the less opportune.

INTERNATIONAL CLINICS. A Quarterly Journal of Clinical Lectures. Edited by Henry W. Cattell. Vol. I., Eleventh Series, 1901. Philadelphia: J. B. Lippincott Co., 1901, viii, 312 pp., 21 pl., 8vo. Cloth. Price \$2.00.

This series opens well. The present volume, besides containing the usual excellent articles on clinical medicine, devotes 100 pages to a concise review of the progress of medicine during the year 1900, by N. J. Blackwood, M.D.

It is difficult to see how a handsome book of this character, beautifully illustrated and filled with productions by eminent men, can be put on the market for so small a price.

TEXT-BOOK OF THE PRACTICE OF MEDICINE. By Hermann Eichhorst. Authorized Translation from the German. Edited by Augustus A.

Eshner, M.D. With 84 illustrations. Philadelphia and London: W. B. Saunders & Co., 1901. 2 vols., 8vo. Price per set: Cloth, \$6.00 *net*.

This is an excellent translation of a well-known German work. Additions and annotations have been made which will be found useful. The form of the work, in two volumes, is a great improvement on the single large one, which is usually employed in productions on this subject.

This is a text-book, dealing only with established facts of the practice of medicine. Its conciseness and completeness will appeal to the student especially.

SYSTEM (A) OF PHYSIOLOGIC THERAPEUTICS. A Practical Exposition of the Methods, Other Than Drug-Giving, Useful in the Treatment of the Sick. Edited by Solomon Solis Cohen. Vol. 1. Electrotherapy. By George W. Jacoby, M.D. In Two Books. Book I. Electrophysics—Apparatus Required for the Therapeutic and Diagnostic Use of Electricity. With 163 illustrations. Book 2. Diagnosis; Therapeutic methods; Special Electrotherapy. Illustrated. Philadelphia, P. Blakiston's Son & Co., 1901. xxii., 17-242 pp. 8vo. In 11 vols. Price, per set, cloth, \$22.00.

This is the first attempt which has been made to collate the various therapeutic measures, other than medical, into anything like an arrangement which can well be called systematic or scientific, and if the first two volumes are good samples of the others to follow, the compiler has certainly scored a success. The subject of Electrotherapy comprises the whole of the Vols. 1 and 2 of the system—the first volume giving a good working knowledge of the appliances and mechanisms used in producing the various forms of electricity suitable for treatment of diseased conditions—the second volume being devoted to diagnostic and therapeutic methods. The author has eliminated much that is useless and confusing, and places the matter before the reader in a plain, straightforward, concise and instructive manner with the subjects well grouped and very well illustrated. The work merits the respectful consideration of the medical profession.

FREDERIC J. SHOOP, M.D.

ATLAS OF THE NERVOUS SYSTEM, Including an Epitome of the Anatomy, Pathology, and Treatment. By Christfried Jakob. With a preface by Prof. Dr. Ad. v. Strümpell. Edited by Edward D. Fisher. With 112 colored lithographic figures and 139 other illustrations. Philadelphia, W. B. Saunders & Co., 1901. 218 pp. 8vo. Price: Cloth, \$3.50 *net*.

The original German edition of this work appeared in 1895, and an American translation by Collins in 1896. This second edition, however, presents much new material. Many choice illustrations have been inserted, and a needed index appended. The text is, however, kept at about the same limit as before. Some of the new plates on brain-anatomy are admirable examples of the lithographer's art. These are not copies, but the Munich originals (as were apparently also those of the earlier American issue). The plates illustrative of pathology are, perhaps from the nature of the case, less satisfactory than those showing normal structures.

Many minor criticisms might be made. In the case of microscopic preparations it might have been well to more generally indicate the enlargement shown in the illustration. In therapeutics he is fairly orthodox as far as he goes, but inadequate and not up to date. For instance, he makes the treatment of acute myelitis the same as that for compression myelitis; that for embolism and thrombosis the same as for hemorrhage, and to say that antisiphilitic treatment of paresis is "rather harmful than beneficial" is too sweeping. In fact, nearly all of Part IV. might better have been omitted, as it is very incomplete and not any necessary addition; it simply trenches on the field of the ordinary treatises. His statement, p. 74, that "any part of the cerebellum can be supplied by another," is questionable, as there is some evidence that cerebellar titubation depends on lesion of certain parts.

As a whole, it is an excellent work and one to be highly recommended to all who are seeking the best instruction in this field. And the great wealth of illustrations gives it a unique value for this purpose. The price is no higher than for the first edition.

W. B.

TREATISE ON APPENDICITIS. By George Ryerson Fowler, M.D.
Second Edition. Revised and enlarged. Philadelphia and London,
J. B. Lippincott Co., 1900. 11 front., 235 pp. 13 pl. 8vo.

In this volume we find Dr. Fowler at his best in an excellent example of book-making. There are many good illustrations. The chapters on The Inflammatory Lesions of the Appendix and Bacteriological Considerations, while evidently the work of a practical surgeon rather than a pathologist are short and directly to the point. The chapters on Diagnosis and Differential Diagnosis might well be studied by every practitioner in the community. The chapter on Differential Diagnosis is based on cases actually coming under Dr. Fowler's care in his hospital service. It is the best arrangement your reviewer has even seen. Dr. Fowler well says that every case of colicky pain in the abdomen suddenly developed, with right-sided tenderness should be regarded as a case of appendicitis until the supposition is disproved.

Excellent chapters on the non-operative treatment and the treatment of the complications of appendicitis follow.

The operative treatment by the different routes is ably stated. The author's own operation is clearly illustrated and described in detail. We notice that the author operates with his hands and arms stained with the corrosive sublimate—permanganate of potash solution. He does not use

the oxalic solution until after the operation. We rather regret that the author does not insist on the use of rubber gloves for every one concerned in the operation. The importance of the after-treatment is emphasized and the possible complications considered.

This volume is certainly the most valuable and complete work on appendicitis that has yet been offered to the profession.

W. B. BRINSMADE.

A TREATISE ON APPENDICITIS. By John B. Deaver, M.D. Second edition. P. Blakiston's Son & Co., Philadelphia, 1900.

This second edition contains many of the faults for which the first was justly criticised.

The chapters on History, Anatomy, and Clinical Etiology are followed by a masterpiece on Pathology, written by Dr. A. O. J. Kelly. Dr. Kelly's conclusions are based on the examination of 577 appendices removed by Dr. Deaver during two and one-half years. While the personal views of the writer are strongly stated, the observations of other investigators are not ignored. He discusses Dr. Van Cott's theory that the real cause of the *locus minoris resistentiæ* in the appendix is to be found in atrophic disturbance due to chronic vascular or chronic nerve lesion. Dr. Kelly believes that Dr. Van Cott erroneously interprets the significance of these lesions and overestimates their importance. The discussion is a model of what such discussions ought to be.

The chapter on Pathology takes 121 of the 268 pages of reading matter. Of the 706 appendices examined, Dr. Kelly found carcinoma in three, endothelioma in one. Chapters on Symptomatology, Diagnosis, Differential Diagnosis, Prognosis, Treatment and Complications and Sequels follow. These chapters contain many valuable points, the results of the author's wide experience.

If Dr. Deaver, who removed 577 appendices in one hospital during two and one-half years, had only tabulated his cases, stating the initial symptom, the initial temperature and pulse, the position and condition of appendix in each case, the proportion of cases drained, and the other points so often discussed, he would have made a most valuable contribution to the surgical world.

W. B. BRINSMADE.

THE ACUTE CONTAGIOUS DISEASES OF CHILDHOOD. By Maurice F. Hatfield, M.D., Chicago. G. P. Engelhard & Co., 1901. 12mo. 135 pp. Price, cloth, \$1.00 net.

This book lays no claim to original work, but presents in a condensed and readable form mainly the views of various pediatricians. There is a tendency to quote too frequently from foreign authorities to the exclusion of our own in America. Scarletina, measles, r  then, mumps, pertussis, varicella, variola, and la grippe are the topics. To our mind the last-named disease should be considered as infectious rather than contagious. In our

experience the eruption in the above named eruptive fevers *frequently* appears first in the pharynx and on the roof of the mouth, and we feel quite sure that diphtheria is associated with scarlatina much oftener than the author admits. We appreciate the difficulty of reconciling the views of many men of many minds. The author has succeeded very well in doing this and presents as an outcome a book which must be of service to the practitioner, general or special.

A SYLLABUS OF NEW REMEDIES AND THERAPEUTIC MEASURES; with Chemistry, Physical Appearance and Therapeutic Application. By J. W. Wainwright, M.D. Chicago, G. P. Engelhard & Co., 1901. 224 pp. 12mo. Price: Cloth, \$1.00 *net*.

This volume is very attractive in form, texture and general make-up. It gives, in condensed compass, information gathered from clinical reports. That the author is an enthusiast, one would infer from the following prefatory remark "that the part of the practice of medicine which brings to the physician success, that enables him to meet his obligations, that extends the boundaries of his domain and holds fast his clientele, is the least understood of all branches of medicine. I refer to pharmacology or the science of medicines, their nature, administration and effects.

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

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VOL. XV. No. 9.
WHOLE No. 165.

} BROOKLYN, N. Y., SEPTEMBER, 1901.

} Single copies 25 cents
} \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

CITY VERSUS INDEPENDENT HOSPITALS.

BY JESSE T. DURYEA, M.D.,

General Medical Superintendent of Kings County Hospital.

Read before the Medical Society of the County of Kings.

A comparison of the charitable work done by public and private hospitals cannot be accurately made; each has its field. The methods, conditions, motives, management, and the results obtained by various hospitals, public and private, differ in either field so materially that any effort of comparison, based upon statistical reports, can only be misleading.

Institutional statistics to be of value for comparative purposes would have to be uniform, and so clearly defined that all institutional authorities would have one general understanding of them, and they would have to be kept with the same intelligent care and accuracy that governs the keeping of the financial facts of an institution; it is impossible to judge of the financial management of an institution by the financial facts alone; the

character of its inmates, local conditions, and the laws under which it exists must be weighed with such financial facts, and one passing judgment on the bare results presented in the medical and surgical report of an institution, without a deeper knowledge of the individual conditions, must needs be in error.

A high death rate, of itself, does not indicate lack of proper medical or surgical management, neither does a high per capita cost, of itself, indicate bad financial management, as these results, generally speaking, are apt to be due to the conditions beyond the control of the management, such as physical material, severity of cases, locality, facilities, etc.

It is safe to assume that hospital management generally is as good as individual conditions will permit, and that there is sufficient supervision by State and municipal officials, together with Boards of Managers, Trustees, Visiting Committees, Grand Juries, etc., to readily detect and correct any abuse or administrative error that may occur in either the public or private hospital. There is probably no organization more thoroughly or more often inspected by impartial inspectors than the public hospital of to-day; this is as it should be, because it more surely guarantees good management than anything else.

The apparent increase in the establishment of hospitals throughout the country requires some thought; in the last three years more than 1,000 new hospitals have been established, representing a building investment of over \$50,000,000; most of these hospitals have followed the example of older institutions in the establishment of free dispensaries to serve as "feeders" for the hospital wards.

There can be no question as to the motives of those interested in this work, but there is an important question in the results which pertains to the encouragement of dependency among a class of people who would be independent, were it not made so easy for them to be otherwise.

The question of increasing dependency is an important one, and reasonable effort should be made to create a wholesome fear of this condition. In the eagerness to relieve suffering and to do charitable work are we not at times apt to overlook the fact that we may be placing a premium on pauperism, that we may be showing an easy way to dependency to those who have hitherto been independent? Is it just to give the patient who, through his own previous neglect, is dependent immediately upon becoming ill, a bed next to the thrifty patient who has provided

himself with the means to pay for at least the cost of his treatment? It is a generally conceded fact by those who have studied hospital problems that a very considerable number of patients are treated free in private hospitals who could pay, and others who would have provided against illness did they not know the ease with which they could procure free treatment, and the physician, for the greater good he can accomplish in a larger clinical field, willingly does much (for nothing) for which he should, and could, be paid.

All necessary treatment and comfort should be provided for those who are ill, regardless of their previous habits, or conduct of life, but it is not wise to give the vagrant who is thriftless more than is necessary to meet the requirements of his condition and as much as the man who is able to pay for what he gets, and it would be better to keep entirely separate the dependent and those who are self-supporting.

The impression held by many people, that the City of New York has deprived private hospitals of public funds is erroneous in that while the city has changed its method of distributing these moneys it has also been just as liberal as under the old method.

The city appropriates annually for its Public Charities Department \$1,895,491, and for its Department of Correction \$758,775, and for private correctional and charitable institutions \$2,991,868, making a total of \$5,646,134; of this latter amount about \$810,000 is distributed among 77 independent, or private hospitals throughout the city.

The relative liberality of New York City in its charitable matters is a very large subject and one that cannot be discussed in this paper; it is sufficient to point out, however, that \$337,602 more is appropriated by the city annually for private charitable and correctional institutions than is appropriated for its own public institutions. This municipal liberality will scarcely be found in any other city in the United States where municipal institutions are maintained, and a full discussion of the advantages of private care of public charges, or public care of private charges, requires the taking into account of many local, sectional, political, financial and sectarian conditions.

In the Boroughs of Brooklyn and Queens there are thirty-one hospitals and innumerable dispensaries, and the amount of charitable medical and surgical work done is almost incalculable.

Previous to 1900 it was the custom of the city to appropriate

to each hospital a sum of money to assist in paying the general expenses of the institution; these amounts ranged from \$500 to \$20,000 per year, which the hospitals received in a lump sum. No accounting was required by the city, or given by the hospital, either of the method of expending the money or of the amount of work that was done in return for it, and the hospitals took care of such patients as they saw fit, refusing or rejecting such cases as did not appeal to them, either from the standpoint of clinical or financial advantage.

It is easy to see the errors and injustice that could creep into such a method of distributing public funds, and it is also easy to see that hospitals might, through various methods, get appropriations far in excess of the amount justly due them for the service they rendered, while other hospitals might receive a proportionately small amount, when really doing a larger amount of public work. It is also easy to see that efforts would be more or less continuous to increase these appropriations, regardless of the relative amount already being appropriated, and regardless also of the amount of work being performed.

This ease of obtaining city funds without an accounting led some hospitals into the habit of caring for public patients that the city was not called upon to care for, and instances of poor officers of other counties bringing hospital cases to the city and leaving them were not uncommon; it also encouraged a lack of effort on the part of some hospitals to force a payment from those patients who were able to pay a minimum hospital rate.

The difficulty of formulating a plan that would be suitable to the conditions obtaining on this question is apparent, as is also the impossibility of formulating one that would be satisfactory to all who would be affected by it, and the adoption of the present system, by the Honorable Board of Estimate, must be conceded by all acquainted with it to show a very comprehensive knowledge of the subject, and to be a move in the right direction, even if nothing more was accomplished than the putting on a business basis the system of distributing public funds.

The Honorable Board of Estimate set aside, for the year 1900, the same amount of money for each hospital, as the hospital had been in the habit of receiving in previous years, with the provision that each institution should receive only such part of that amount as it could earn, on a per capita basis, and under certain rules, the principal points of which are:

"That no patient can be accepted in a private hos-

pital, at public expense, as long as there is room for such patient in the public hospitals.

"That all public patients shall be examined and investigated, and accepted by the Department of Public Charities, and upon their acceptance such patients shall be paid for at the rate of 80 cents per diem for surgical cases, 60 cents per diem for medical cases, \$18 for maternity cases, (38 cents per diem for the infant, and \$12 per month for the mother, where they are maintained by the hospital after a puerperium of 15 days) and 35 cents per day for all children under 5 years of age."

The rules also provided that moneys received in this way by private hospitals should be devoted entirely to the maintenance of these public patients, and should not be invested in buildings or improvements or used for the payment of debts.

It was my misfortune to be placed in charge of this system, in the Boroughs of Brooklyn and Queens, on January 1, 1900, at which time it was found necessary to accept as public charges all of the patients then in the private hospitals throughout the two boroughs, in consequence of the crowded condition of the Kings County Hospital, at Flatbush.

Private hospitals were also instructed at that time to receive all emergency cases applying to them, and to refer all other cases to the Charities Department for relief. The latter plan many hospitals failed to carry out, preferring to accept such cases as they saw fit, at their own risk of having them accepted by the department's examiners rather than to refer them to the department, with the chance of not getting them back.

The failure of some of the hospitals to carry out this plan resulted in the department's being able to take care of all charity patients that applied to it for relief; consequently, none was accepted, or referred to the private hospitals, except the emergency cases occurring in the respective hospital districts, and as the private hospitals preferred to receive other than emergency cases without referring them to the Department of Public Charities, the department was in no way called upon to accept them as public charges. This without question caused some financial loss to the private hospitals.

The exceptions made to the above rules were in the cases of St. John's Hospital, at Long Island City; the Flushing Hospital, at Flushing, Queens Borough; and the Jamaica Hospital,

at Jamaica, Queens Borough: where all proper hospital cases were accepted as public charges regardless of the emergency, because of the distance and consequent possible hardship to the patient, cost of transportation, etc.

It is obvious that this was an equitable system, which permitted of only one possible criticism—that some of the private hospitals would be deprived of part of the moneys they had hitherto received, either because they had not earned all they had previously received, or because the lack of their need was shown, or because, on account of location and lack of ambulance service, they would be unable to secure emergency cases, or being special hospitals, there would be comparatively fewer demands upon them, and that other hospitals would earn more money than they had previously received, because their locality and facilities were greater. This, however, could not be overcome, because, as before stated, the Charities Department was not obliged to refer any cases to any private hospital.

The one point about which question could arise was as to what constituted an emergency case; this had to be determined in each individual instance, and there have been occasional differences of opinion between hospital authorities and the Charities Department on this account, because no rule could be adopted that would entirely govern the matter, and much had to be left to the judgment and discretion of the examiners, who were instructed to be liberal, and while keeping strictly within the rules of the Board of Estimate, to as far as possible give the hospital the benefit of any reasonable doubt.

It is necessary to say that some of the private hospitals adopted methods of securing the acceptance of patients that were at least misleading to the examiners, who, being held strictly accountable for their work, were made more cautious, and possibly in some instances were led to err, to the disadvantage of the hospital, though these occurrences were exceedingly rare, when the fact is considered that in the first year 6,227 patients were accepted, representing thousands of days of surgical or medical relief, and also that the system was looked upon with great disfavor by most of the hospital authorities. The result of the first year's work under this system shows that seven hospitals in these boroughs received more money than under the old system, while 18 received less, and that under the present system, as conducted last year, the 27 hospitals receiving public funds earned \$50,535.17 less than they received in previous years: or,

in other words, there was in 1899 distributed by the city, among the private hospitals in the two boroughs, \$175,264.29, which, under the new system, was reapportioned and earned at a per capita rate, the hospitals being able to earn \$124,729.12, so that the total loss to all hospitals in the two boroughs amounted to \$50,535.17, or an average of loss to each hospital of \$1,871.67, or, excluding entirely the five private hospitals which discontinued taking public patients, the average loss to the remaining 22 was \$1,318.78.

This would indicate that the apprehension generally felt by hospital authorities that their funds were being cut off by the city was erroneous, and rather goes to show that there is a greater necessity for the existence of certain hospitals.

It is regrettable that some of the institutions most adversely affected by the new system are also the hospitals which were in the greatest financial embarrassment when the change was made.

A large number of cases inspected by our examiners were found to be able to pay at least the minimum hospital rate, and were excluded. Another prominent cause for rejection was non-residence, it being found at least in one hospital that a majority of the patients, who were chronic cases, came from out of town while nearly all hospitals were receiving a greater or less number of public patients not chargeable upon the city of New York.

A few figures showing the comparative cost of maintenance of public patients in private and in public hospitals are interesting, for the reason that it shows how little the city is paying to private hospitals for the maintenance of public patients, in proportion to the cost, and how much it is paying in comparison to the cost in the public hospitals, where all the necessities, and possibly a few luxuries, are provided.

Beginning with the private hospitals, the per capita cost per diem for maintenance of public patients is:

Presbyterian Hospital, New York.....	\$2.40
Manhattan Eye and Ear Hospital, New York....	2.14
Memorial Hospital, Brooklyn.....	2.10
Methodist Episcopal Hospital, Brooklyn.....	1.93
Brooklyn Eye and Ear Hospital, about.....	1.86
St. Luke's, New York.....	1.82
Eastern District Hospital, Brooklyn.....	1.59
St. John's Hospital, Queens County.....	1.50
Williamsburg Hospital, Brooklyn.....	1.50

Jamaica Hospital, Jamaica, L. I.....	1.30
St. Mary's General Hospital, Brooklyn.....	1.25
Skin and Cancer Hospital, New York.....	1.25
Brooklyn Hospital, Brooklyn.....	1.16
L. I. College Hospital, Brooklyn.....	1.05

In the public hospitals in the city of New York the per capita cost per day is:

Bellevue, alone	\$0.6157
Bellevue, including its branches, which are the Emergency, the Fordham, the Harlem and the Gouverneur Hospitals.....	\$0.6709
Kings County Hospital, Brooklyn.....	0.55479
City Hospital, Blackwell's Island.....	0.4394
Metropolitan Hospital	0.4558

So far as the public hospitals here mentioned are concerned, it can definitely be stated that the figures given include all items of expense—provisions, clothing, bedding, salaries, drugs and liquors, surgical instruments and appliances, fuel, light and miscellaneous items, under which latter heading is included all ordinary repairs to buildings. Whether all these items are included in the per capita cost of all the private institutions which are given, it cannot be said.

It is not my purpose to have you infer from these figures that the free patients in the hospital with the lowest per capita cost receive all that such patients receive in the private hospital with the highest cost, neither is it my purpose to indicate to you that more money could not be spent to advantage at the Kings County Hospital for its maintenance; the difficulty of properly maintaining a large number of hospital cases on 55½ cents per day, and that a smaller number of patients could not possibly be well maintained at that figure must be apparent to all; the per capita cost per diem for drugs, liquors and surgical supplies alone at Kings County Hospital is \$.0622, while provisions alone cost about 14 cents per diem for patients, employees and officers alike, leaving about 35 cents per day per patient for all other expenses—salaries, light, fuel, water, clothing, bedding, furniture, miscellaneous supplies and repairs to buildings and equipment.

It appears from the above figures that the city would save many thousands of dollars annually by maintaining all of its public patients in its own public hospitals, and at the same time

save private hospital authorities the effort required to make up the difference between the amount now paid them by the city for public patients and the actual cost of maintenance of such patients.

The method of establishing private hospitals to do public charitable work, without tangible means of obtaining money for maintenance, cannot be commended from a business standpoint, and it would seem to be as important to have the character and scope of work well laid out, with a sufficient maintenance fund guaranteed, as to have the building fund guaranteed, and it is also important that the scope of work should be increased after the maintenance fund has been added to, and only within the possibilities of the fund. One not coming in direct contact with this work can scarcely appreciate the amount of good accomplished or the amount of courage required by the many hospital authorities working under such financial difficulties, and the constant effort to increase the field of work is apt to carry it out of proportion to the income, and to cause it to undertake, voluntarily, much public work, that the city would certainly provide for if it was called upon to do so.

THE ADVANTAGE TO THE PUBLIC AND THE CITY OF THE NON-MUNICIPAL HOSPITAL.

BY JOHN HARRIGAN, M.D.

Read before the Medical Society of the County of Kings.

Non-municipal hospitals, that is to say, hospitals not owned by the city or the municipality, are advantageous to the public because they care for and relieve people suffering from disease. The extent to which such hospitals are an advantage to the public is determined by the amount and the quality of the work performed by them. The history of the hospitals of this borough shows that they have been a decided benefit to the community by reason of the number of the sick they have restored to health and usefulness.

A majority of non-municipal hospitals are known as sectarian; that is to say, they were founded and they are, to a considerable extent, maintained by religious societies. While it would seem to be more in accord with the advanced thought of the present time that all semi-public institutions should be strictly non-sectarian, it is safe to say that the sectarianism of

these institutions is merely nominal. It does obtain in their management, but does not apply to their benefaction; for all who seek admission to them fare alike, irrespective of nationality, class, creed or color. The sectarianism, or denominationalism, therefore, of these hospitals should not be considered objectionable.

At the Long Island College Hospital the number of patients in the institution, October 1, 1899, was..... 168

Number of patients admitted during the year ending September 30, 1900..... 3,893

Total 4,061

Discharged cured during the year.....2,435

Discharged improved 877

Unimproved 280

Transferred to other institutions..... 28

Otherwise discharged 68

Of those treated during the year, 555 were paying patients and 3,606 were beneficiaries. Of the total number of beneficiaries, 367 were supported by public funds and 3,139 by private funds. For the care of the beneficiaries supported by public funds, 80 cents per patient per day was received for the surgical and 60 cents for the medical cases. For the care of the beneficiaries supported by private funds, 90 cents per patient per day was received for adults and 50 cents for children.

At St. Mary's Hospital the number of patients in the institution, October 1, 1899, was 161

Number of patients received during the year....1,733

Total1,894

Discharged cured during the year..... 912

Improved 509

Unimproved 100

Transferred to other institutions..... 18

Otherwise discharged 32

Of those treated during the year, 1,027 were paying patients and 867 were beneficiaries. Of the total number of beneficiaries, 387 were supported by public funds, that is to say, by the city, and 480 by private funds, that is to say, by voluntary contributions. For the care of the beneficiaries supported by public funds, 80 cents per patient per day was received for the surgical and 60 cents for the medical cases. If the 480 patients that were

supported by voluntary contributions be added to the 387 supported by public funds, the total is 867, the number of hospital days being 26,830. Dividing the sum received from the city by this number of hospital days, it will be found that for the care of these 867 dependent patients the hospital received 34 cents per patient per day.

This brief summary of the work of the Long Island College Hospital and of St. Mary's Hospital for the year 1900 is presented, as it is believed they are representative institutions, and for the further reason that I have the honor to be officially connected with both, and am, therefore, somewhat familiar with the management of their affairs.

The objection raised by the city authorities to having dependent patients cared for in the non-municipal hospitals at the city's expense while there is any sort of accommodation for them in the county hospital, is presumably based upon economic considerations. If the carrying out of this policy results in a saving to the city, and if the taxpayers' interests are subserved thereby, it becomes a matter of interest to the public, and they should be informed as to the facts.

The Kings County Hospital, for the year 1900, reports the per capita cost of maintenance to be \$0.56829. Exception is taken to these figures and to the basis of calculation that produces them. The report shows that the number of days of treatment afforded to patients was 242,182, and that the cost of maintenance was \$172,956.24. If this amount be divided by 242,182, it will be found that the cost per capita per day is \$0.71415. The manner in which the \$0.56829 rate is figured out appears to be as follows: The number of days' board provided for employees is 63,214. By adding these figures to the number of days' treatment afforded to patients, a total of 305,396 is obtained. If the \$172,956.24 be divided by this, the cost per capita per day will appear to be over 56 cents, or very nearly 57 cents. It thus seems that in order to produce these figures it was found necessary to add 63,214 days' board provided for employees to the 242,182 days' treatment afforded to patients. That the report in this particular is misleading is self-evident.

It is safe to say that the interest on the \$1,000,000, at which the Kings County Hospital is valued—buildings and grounds—is at least \$50,000 per year. Adding to this the cost of maintenance given in the report, \$172,956.24, produces a total of \$222,956.24. Dividing this amount by 242,182 will show that the per

capita per day for the maintenance of patients in the Kings County Hospital is 91 cents. If exception be taken to the propriety of including in the current expenses of the Kings County Hospital the interest on the money expended for the plant, it should be sufficient to say in reply that the taxpayers have to furnish the \$50,000 used for that purpose, precisely the same as they have to furnish the \$172,956.24 for the expense of its maintenance. When a non-municipal hospital is encumbered with a mortgage, the money to pay the interest on the mortgage does not come out of the tax levy.

These figures prove that in this borough the care of dependent patients costs fully as much in the county or municipal hospital as it does in the non-municipal hospitals; but that in the latter the difference between the amount allowed by the city and the actual cost is made up by voluntary contributions and by the profits realized from the care of pay patients, while the taxpayers have to foot the entire bill for the expense of those cared for in the county hospital. This being the case, it would seem that it is a policy devoid of economic value to refuse the non-municipal hospitals the privilege of caring for dependent patients at a nominal expense to the city unless the crowded condition of the county hospital is such that it cannot accommodate them.

The presentation thus made is not in any wise intended to find fault with the strictest surveillance of the expenditure of public money, nor is there any desire to speak otherwise than in words of earnest praise of the methods adopted by the city's financial officer, which tend to check the growth of "fake" institutions, in business for considerations other than the public weal.

The service rendered to the public by all properly conducted hospitals is much needed and exceedingly valuable; as, under the existing order of things there is and always must be a given per cent. of poor people whose limited means is barely sufficient to enable them to live from day to day when in health, but who become wholly destitute when sickness supervenes. The unfortunates so circumstanced must, of necessity, become a charge to the public or to some subdivision thereof. The duty of the public in the premises is an exceedingly important one, whether it be performed by individuals, by societies, or by the representatives of the people who constitute the city government. The obligation to provide for the destitute sick is largely a moral one, but it is so strong that failure to recognize it would be highly discreditable. This moral obligation carries with it another obliga-

tion equally strong, which is that the action of the State, city or community in dealing with those who are its wards for the time being, should be uplifting and helpful and never degrading or debasing. The best possible service that can be rendered to the sick poor is to restore them to health and self-sustaining conditions. When, however, they are consigned to an institution known to exist for the shelter of paupers only, the effect is and necessarily must be demoralizing. The stigma of pauperism is placed upon them, and "once a pauper always a pauper" is likely to be the result. When these patients are discharged from the county hospital their manner and behavior show that they have lost all ambition; and, having acquired the pauper habit, after a brief interval they come again, seeking relief, treatment or shelter, as the case may be. When patients of this class are inmates of the non-municipal hospitals, the fact that they are cared for at the expense of the city is not so humiliating; and when they are discharged the chances of their becoming self-sustaining is increased a hundredfold. What is here asserted is not at all speculative; it can readily be veried by observation.

Reference has been made to the practice that obtains in non-municipal hospitals of devoting the profits that are realized from the care of full-pay or private-room patients to the purpose of helping to defray the expense incurred in the care of non-pay-patients, or patients for whom only partial payments is provided. This feature will, to a considerable extent, justify the claim that a well-managed hospital is the best type of co-operative institution that our civilization has as yet produced.

In connection with the discussion of this subject, it seems proper that some consideration be given to the presumed effect that hospitals have on those engaged in the practice of medicine. It ought to be self-evident that the treatment of indigent patients in hospitals does not injuriously affect the medical profession, provided always that none except those without means receive treatment free of charge. It should be equally self-evident that people of means who are attracted to hospitals by reason of the superior accommodation to be had in them should pay for professional service precisely the same as when like service is rendered in their own homes.

CHURCH HOSPITALS.

BY A. C. BUNN, M.D.

Read before the Medical Society of the County of Kings.

In church hospitals, as in all others, scope is determined mainly by support.

Once the scope of each church hospital was the care of all the sick that wished for its ministrations and could reach it, and corresponding support was given by gifts from the wealthy. Such was the great hospital work under direction of the Bishop of Alexandria about A.D. 400. The zeal that it enlisted is shown in its 600 nurses, called *parabolani*, the word implying the divine recklessness with which, defying danger and death, they threw themselves into their work.

St. Bartholomew's, in London, and the Hotel Dieu, in Paris, are examples of hospitals established under church auspices, and for many centuries maintained by the liberality of its members.

Most of the hospital work in Europe down to the present time has been of the same kind.

As hospitals have multiplied, however, their support, except as they were endowed, has become more precarious, and the scope of each has been limited.

At the present day medical mission work in such countries as China and India presents the nearest parallel to the early hospitals, with their crowds of patients. Twenty years ago I established two mission hospitals in Wuchang, an interior city of China, both of which are still in active operation, and one, St. Peter's, for men, is among the best equipped in the empire. They are the first and only institutions of the kind in a city as old as Damascus and having a third of a million inhabitants.

The scope of such hospitals is practically limited only by their support. Usually no pay is asked from the sick, but well-to-do patients and their friends often make presents of considerable sums, and the additional money necessary is drawn from the missionary treasury.

In this country church hospitals have never had such a field

and never can or should have. In nearly all communities they are side by side with municipal hospitals that are supported by city funds, and secular hospitals whose revenues are drawn, like their own, largely from individual generosity. Therefore, only a fraction of the sick apply to church hospitals, and the obligation to care for these is rarely as imperative as if they could not be taken care of elsewhere.

The scope of church hospitals is still further circumscribed by lack of means. I know of not a single one of them, and but one secular hospital, that has enough, and, of course, they can take no more patients than they can support.

Church hospitals may be reasonably sure of considerable support in caring for the sick poor of their own communion. The pastors of these patients will take collections and secure yearly payments for or endowments of beds. It would seem reasonable that the same thing should be done by pastors of cognate faiths that have not hospitals of their own, but are sure to have poor sick folk that they prefer should not be made a public charge. Every church hospital would like, and probably makes, some effort to shelter these, and it also seems quite reasonable and practicable that congregations should unite in supporting Christian work like this. For the most part, however, the hospitals have to console themselves with the reflection that "it is more blessed to give than to receive."

In so far as the church hospitals are unable, for want of support, to shelter this class of sick persons, an opportunity to do a very real good is lost. To a large number of persons the comforts of religious ministrations when in trouble mean a great deal. They are made braver and calmer by prayer and reaffirmation of the faith that they hold. They are helped by assurance that those about them are of the same mind. I hold it, therefore, to be a reasonable deduction, and I think it to be verifiable by many observations, that, other things being equal, a church hospital ought to do the best by church people.

Besides those of the churches, every hospital must almost necessarily care for other persons in its vicinity who are overtaken by sudden sickness or accident, and would be much inconvenienced by being sent to a distant hospital.

Probably most church hospitals were started especially to meet the needs of the classes of patients that have been named. In doing this they are likely to have, unless late arrivals in the field, certain advantages over secular hospitals. They have as support-

ers a number of pastors and congregations. Besides, endowments are most apt to take the form of memorials of deceased friends, and these endowments are most often given by members of churches and to religious institutions.

Thus, the church hospital has a nucleus of support in church collections, individual gifts, and endowments. The sum of these is, however, likely to be insufficient. The income from endowments of beds, based on a calculation of cost made many years ago, does not yield half the annual cost of beds in first-class hospitals to-day, and it is difficult to make any constituency realize how considerable is the necessary outgo in this line of work.

Additional income must be had, and that can come only from pay patients.

The pay may be supplied in either of two ways, from public funds, or from the patients themselves or their friends.

When from public funds it is under a definite arrangement with the city, by which the hospital binds itself to answer police calls for its ambulance. Patients thus admitted are afterwards examined by a city doctor, and if he advises, the city pays to the hospital 60 cents a day for a medical or 80 cents for a surgical case. If the patient is found to be a non-resident, the city will not pay, though it has virtually obliged the hospital to take him. The city may also refuse to pay for any one who, in the opinion of its doctor, ought to pay something for his own care, whether he can be induced to do so or not. It may at any time elect to transfer the patients that it pays for to the municipal hospital, or stop paying for them.

While there is much to be said for the *per capita* feature of this plan, it is difficult to see why the daily rate paid by the city should not more nearly approach the actual cost of caring for the patient. It is only about one-half, and, while the cost in a municipal hospital may be less, it cannot, if all running expenses be reckoned, including salaries, repairs, insurance, interest on investments, etc., be *much less* than in any other first-class institution.

It is true that the cost of *additional* patients, when there is room for them, and the force of attendants need not be much increased, is not in the above ratio. Each hospital has to decide whether it can afford to receive them. If it appears that this can be done only at a loss, the institution is likely to inquire whether it would not best do its charity work with such funds as its patrons furnish it, and for patients whose claims upon it the

hospital authorities have themselves investigated. This will seem to some the safer way, especially as the city is at any time liable and, in my opinion, is likely, to withdraw altogether its appropriation, from which payments to independent hospitals are made.

Should the hospital decide upon this, it will probably reckon among incidental advantages the doing away with the bedside questioning by the city doctor of patients already admitted. However tactfully this may be done, and I have knowledge and experience of only the most considerate and courteous action in this, as in all matters, by the representatives of the city, this must be often felt as a hardship to the patient and a humiliation to the hospital.

Any hospital that fails to conform to this plan, that brings it pay from city funds, will be the freer to arrange hospitality for those who make payments directly to the institution. This brings me to another phase that I consider a most important one of the subject.

Thus far our consideration of the scope and support of church hospitals has been limited to the very poor. This is by no means, however, the whole of their scope. It may be questioned whether it should or will be in the immediate future the principal part of it. It is coming to pass that hospitals are resorted to by persons of small and moderate means and by the wealthy, and it is not unlikely that within a generation it will be the usual thing for persons needing surgical operations of whatever character, and having medical ailments that would cause any considerable inconvenience to others in the family, to resort to hospitals.

The recognition of this side of hospital work is comparatively recent. Up to thirty years ago scarcely any pay patients were received into English hospitals, and it is only within the last twenty years or less that they have been much within the scope of, or contributors in large degree to, the support of American hospitals.

Under these circumstances it becomes of the utmost importance not only to provide proper accommodations, but to so regulate the cost, that no one will be given free service that he could pay for, or will be taxed for it to such a degree as to seriously hamper him. This is important, both economically and morally, and here lies a great part of the sphere of the church hospital for the present and the immediate future. This puts charity on its true basis, according to the definition of 1st Corinthians, 13, not as almsgiving, but as brotherly kindness and consideration.

It may be said with assurance that a church hospital well administered and dealing generously with the very poor of its own communion, and others that it knows to be worthy, leaving the support of the pauper classes in general to the municipal hospitals, and that shall provide accommodation adapted to all incomes, and assign these in a practical and generous spirit, will be, in the long run, assured of adequate support. At the same time, it will fulfil in its scientific, philanthropic, and religious results all reasonable expectations of the many who have given to it skilled service, benefactions, and confidence.

DISCUSSION.

Dr. Walter C. Wood: It seems to me the day of the independent hospital is just beginning. I do not think it is over because the city has withdrawn, in great measure, its support. I think the place for the chronic pauper is in the municipal institution, and I think the place for the self-respecting poor is in the independent hospital, where he gets something more than mere board and medical and surgical attendance. As Dr. Bunn has rightly said, it is this question of sympathy and moral courage and moral support that is going to change these people from paupers in some instances, and going to keep them from becoming paupers in other instances. Provision must also be made for the increasing demands from patients paying for their accommodations. Yet there are certain improvements which must take place in our independent hospitals if they are to practically fulfil their duty. It is a question of finance. The salaries paid throughout the whole institution have been meagre; you cannot get an intelligent orderly for a few dollars a month; there is always something the matter with the man. The nursing in our independent hospitals is, as you all know, on the training-school system. Nurses must be trained, the pauper patients must be taken care of as cheaply as possible; on the other hand, patients paying in part or altogether for their support have a right to expect something more than the care of nurses who are in process of training. I do not wish to say anything against the training-schools, for they have accomplished a great deal; yet, on the other hand, if the independent hospital is to fulfil its mission, the training-school must give way in part to trained nurses. The nursing must be better; there must be a larger proportion of competent nurses and a less number of those being trained.

This also applies to the house staff. It is not the proper thing for the management of such an institution to have men who take the routine care of the case, obtain their experience from the care of that case. In our big independent hospitals, coöperative institutions as they are, we have a right to expect at least one paid surgeon and one paid physician, who shall be more or less permanent, so that the routine care of the patients in the independent hospital shall be far better than it is at present.

With a change every three months, or every six months, in the various offices of the hospital, there are many lapses that occur for which the hospital is rightly held responsible.

I know I learned something as an interne in Bellevue, but I know I learned it at the expense of the patient; and I think many of you can say the same thing in regard to your own hospital training.

If the independent hospital is to succeed, it must succeed along the line of better facilities, of better service, of better food. Our independent institutions have put money into buildings, but they have not put money into brains. They do not pay for the services rendered. The patients have a right to expect better services. I believe, with removal of the city's support and the establishment of independent hospitals along the coöperative basis—which is practically the situation—there must follow this necessary step, that the hospitals must be thrown open to a larger proportion of the accredited members of the medical and surgical branches of our profession. To be sure, this in one sense makes them more or less of a boarding-house, and in one sense it destroys the great clinical teaching that can take place; but, on the other hand, the institutions are supported by the patients, and those patients in such institutions have the right to demand the care of those physicians with whom they have so long become acquainted and in whom they trust and in whom they repose implicit confidence. I believe that is a measure that has got to come along with the line of the other hospital changes.

Dr. Duryea said our hospitals are inspected. They are, but inspected by people who too often do not know what they are inspecting. The average board of managers knows as little about the internal workings of a hospital as they could be expected to know, when they see so little of the practical working of an institution. The government of an institution has got to be put completely in the hands of an expert superintendent. Hospital management to-day has become a profession. The reason why we

have such a good institution out at the County Hospital is because at the present time the city is fortunate enough to have a man who is able to run it, and allows him to run it. Our independent hospitals have got to follow that same plan; they have got to have a superintendent, and they have got to allow him to superintend. This continual interference in medical and surgical matters, strictly professional matters, matters that require an expert opinion, by lay boards, is not conducive to the best management of an institution.

I have spoken frankly on this subject, because I feel deeply.

Mr. Henry W. Maxwell: Although I am entirely unprepared to say anything, I do not hesitate, owing to your kindness and respect in inviting me, to express my views in a few words on the question of municipal and non-municipal hospitals.

I have listened with great interest to the paper read by Dr. Harrigan, of our Board of Regents, and also the reply of Dr. Duryea, as representing the Charities Department. I, of course, will not involve myself in the many tables and statistics which these gentlemen so ably introduced, but will rather say a few words in regard to the position of emergency hospitals in relation to the charitable work of a great city.

The Long Island College Hospital, of which I have the honor to be President, has very vital relation to the question now being considered. We, of course, suffer more or less in the curtailment of public support given to the hospitals and dispensaries in this borough, but we shall continue to do our work, and hope to be supported in this by the public funds and by the earnings from private patients and charitably disposed people in our city.

I cannot help but feel that the present management is making a mistake in not doing for institutions of this class as much as heretofore, and any policy pursued that has a tendency to discourage the charitable feeling among our people cannot fail to work to the detriment of the civic spirit. It must be clear to you all that compensation for only emergency cases will not go a great way toward sustaining an institution such as I represent; and I feel that in the financial support given some consideration should be shown to institutions that have to carry a number of unoccupied beds at all times, to be ready for any serious disaster which might occur. It must be manifest that, whether or not all the beds in the hospital are occupied, the administration expenses continue to run.

The Long Island College Hospital, as you are well aware, is

an institution of learning as well as charity. It tends to keep our city as an educational center before the public.

I cannot close without expressing my admiration for the efficiency and faithfulness of Dr. Duryea, and only hope that his earnestness in the interests of the city will not be used to the detriment of the non-municipal hospitals.

I thank you very much for this opportunity to present, though in a very imperfect way, the side of the question for which I feel an appeal should be made.

Dr. John Harrigan: Mr. President and gentlemen, if the subject discussed here this evening is to be of any value to the public, they should be furnished with facts. To say that a report is constructed in accordance with models used elsewhere is not a sufficient reason for withholding the facts which it is supposed to furnish. The report of the Kings County Hospital, when carefully examined, shows that it costs the city more to have dependent patients cared for in that institution than in the non-municipal hospitals.

Dr. Duryea: I have been very glad indeed to hear this subject freely discussed by gentlemen connected with other hospitals.

There are various systems of figuring the per-capita cost in hospitals, and no one is generally adopted. The patients' maintenance includes the items I have stated in my paper; and does not include interest on investment. It is impossible in figuring the per-capita cost, to separate the food used by employees from the food that is used by patients; and the food used by employees and officials costs much more than the food used by patients, almost double, depending upon the hospital. Omit that entirely from the Kings County per capita, and the cost of maintenance will be less than 55 cents a day.

Several of the gentlemen have spoken about separating the permanent pauper patient from the temporary pauper. The temporary pauper is one who is dependent only during his illness, and the permanent pauper is one who is dependent all the time. At the Kings County Hospital no patients are taken from the almshouse at all, as was the custom years ago. It was simply the poorhouse hospital, and inmates, when taken sick, were removed from the almshouse to the hospital department. That is not so now. The vast majority of the patients in the Kings County Hospital are temporary dependents, and just as soon as they are well they go out and go to work again, the same as the poor in other hospitals.

The simple fact that the Board of Estimate has tried to adjust the distribution of public funds on an equitable basis is no reason for thinking that the funds will be entirely withdrawn.

Dr. Hutchinson spoke of the possible lack of medical and surgical attendants at Flatbush. There is a visiting and consulting staff of sixty. Forty are active, and they are representative men in the medical fraternity in Brooklyn. All of them are members of this society, and many of them are here to-night.

It is impossible to compare the death-rate of a nursery and an infants' hospital. At the Infants' Hospital all the foundlings found in ash-barrels, on door-steps, etc., are received, after having been neglected from the day of birth until the time of admission; and the percentage of those foundlings who live after being found is very, very small indeed. We make every possible effort to save them, and go to any expense in a special case to promote their vitality.

If the private hospital refused to take the public cases, the city certainly would take care of them. The private hospitals did not refer them to the department, they took them in, voluntarily assuming their care.

Mr. Maxwell: Can you send them to Flatbush and send them back again?

Dr. Duryea: You are not asked to send them to Flatbush, but are simply asked to refer cases, not emergency, to the Charities Department, 126 Livingston street.

Mr. Maxwell: And if they rejected them?

Dr. Duryea: They would not reject them. When the hospital in Flatbush was established it was a good many miles further away from Brooklyn than it is to-day, and it was established for the sick to be sent there. Those who put the hospital there originally must have considered that.

In regard to the acceptance of non-resident patients. I agree with Dr. Ambler absolutely that emergency cases should be taken into the nearest hospital, and paid for by the city, whether the patient is a legal resident of the city or not. There is no question in my mind about that, and never has been. One non-resident to my knowledge was paid for in one of the hospitals for a matter of eight months. At the end of eight months the Controller's Office discovered that the patient was not a resident of the Borough of Brooklyn, and deducted from the amount of the next bill the whole time that the patient had been paid for by the city.

When a non-resident patient is sent to a municipal hospital

the State pays the city at the rate of two dollars a week. This money the municipal hospital does not get; it is turned over to the City Treasurer.

The State Board of Charities and the State Charities Aid Association are organizations whose duties are of inspection and recommendation, and they have people who are trained for that purpose, and who are entirely impartial in their findings.

ASTHENOPIA.

BY HEBER NELSON HOOPLE, M.D.

Read before the Medical Society of the County of Kings

By asthenopia we understand what the patient means when he says he has weak eyes; he cannot use them comfortably. In a good state of health he should not be conscious by discomfort of this function more than of any other.

For the most part the causes of asthenopia all have to do with—are, in fact, more or less dependent on—impairment in, or tire from overuse of, the muscular apparatus of the eyes. This may be true even when the subject of the asthenopia is at fault first, and essentially, in his lack of nerve force. The neurasthenic becomes the “neurasthenope,” to use a word given us by Seabrook,¹ because certain of his eye muscles are not efficiently and harmoniously innervated. His visual sense is impaired at the same time; so that, even if accommodation, convergence and fusion could all be efficiently performed, he still could not bring his vision up to the normal. But, where the neurasthenic condition is enough to impair the visual sense, it has already produced anarchy in either the ciliary or external ocular muscles, or both, even without the co-existence of error of refraction. Overuse in such cases is sufficient in itself to determine the discomfort. In less extreme manifestations of the same type of individual, for whom, with Seabrook’s permission, we shall retain the name *neurasthenope*, the existence of a *small* error of refraction will bring about the symptoms of eye-strain. In such, the correction of small errors of refraction is essential to their comfort. Otherwise they will say they have blurring of the print in reading, the letters dance before their eyes, they have

brow aches, the light is not easily tolerated, and the eyelids are held closer together. It has been pointed out by Gradle² and others³ that this class of asthenope is more often seen in the United States than in Europe. In most cases it denotes a degeneration of nerve-tissue, an impairment of the quality of nerve force, or resistance. The worst feature about this type is that it is not always susceptible of much betterment. Attention to hygienic management is essential; but, even with great care, this class of patients easily finds its limit of endurance. Generations of care will be needed to regain what loss perhaps a single error has produced.

After the neurasthenope is excluded, there is still left a large class of *normal asthenopes*, so called by Gradle. By this term "normal" is meant all of those whose nerve tissue is not primarily at fault, whose nerve resistance is good, who do not easily have headaches or other pains, who can tolerate and overcome without asthenopia small errors of refraction and other slight disturbances of the economy which would be certain to produce discomfort in the first class considered. When, however, these normal asthenopes have more than a certain small and tolerable amount of error of refraction, that error must be corrected or asthenopia is experienced. The error may be of various kinds. The predominating is hypermetropia, or hypermetropic astigmatism. Especially troublesome is irregular astigmatism of either hyperopic, myopic, or mixed character. By irregular I mean with angle away from the vertical or horizontal. A singular observation is that if error is made in correcting for such irregular astigmatism, it is frequently tolerated by the normal asthenopes when the amount of error is not great; but it is beyond all tolerance by the neurasthenope. For example, at Moorfields it was often customary to order a correction at 90° when the ophthalmometer showed the error from 5° to 20° away from 90°. And this was usually tolerated. No doubt it might have been worn with much greater comfort at the proper angle. But evidently the patients at Moorfields were not neurasthenopes.

The classes of workers who suffer most from asthenopia are those whose work requires more or less constant accommodation. This is the case especially with "sweaters" who sit all day at their sewing; and it is so in a degree proportionately less with others whose accommodation is less taxed and whose habits are less sedentary.

When small errors of refraction or none at all are found,

and yet asthenopia is declared, other factors are at work to produce it. Often it is due to a misbehaving stomach. Some have traced it to cystitis. In others it disappears on giving the proper attention to uterine troubles. In still others no cure is effected till nasal faults are corrected; and these we know may be numerous.

So far, the ciliary muscle alone has been considered; and, in the great majority of asthenopes, this is the chief one at fault. Sometimes the ciliary muscle is less disturbed than the external ocular muscles, the latter working inharmoniously, or being in a state of anarchy.

Causes capable of producing impairment of function of the ciliary muscle may also affect the external ocular muscles. Graddy⁴ maintains that the latter are affected only because they are the servants of the former. Valk⁵ dissents from this and finds the external ocular muscles disturbed apart from the relation of convergence to accommodation, due, as he supposes, to the existence of a separate center for *fusion* from that which controls *fixation*. Differences in theory are accompanied by like differences in practice. Dyer and Savage,⁶ supposing the muscles to be essentially weak, advised frequent and rhythmic exercises with accommodation and prisms. Gould⁷ elaborated the exercise of carrying the weighted convergence stimulus from the near-point to the far-point. To him the muscles were not weak, but simply needed central stimulation. Others regarded the anarchy as due to inequality of power in the muscles, and, therefore, sought to regulate their action by tenotomies and advancements. Those who thought the interni or superior recti were too strong did tenotomies on those muscles to meet the indications. Those who thought the externi were too weak advanced them. It is doubtless true that relief in many cases has been obtained by all the methods: it is doubtless equally true that failures have been scored by all of them. It is worthy of note that attention to co-existing troubles in other organs has given relief of asthenopia without resort to a method of treatment arising from any of the current theories. I have seen a muscular asthenopia disappear under simple tonic treatment, or a sojourn in the country. It frequently follows cure of uterine trouble. I have repeatedly caused its disappearance by removing faulty conditions in the nose. In conclusion I have only this to say, that I hope to see the time arrive when muscular asthenopia, so called, shall be

recognized to be but a symptom of disturbance of a part of the sympathetic nervous system.

253 Gates avenue.

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INTERDENTAL SPLINT FOR FRACTURES OF THE JAW.

BY J. W. RUSSELL, M.D.

Read before the Medical Society of the County of Kings.

The interdental splint of vulcanized rubber, though invented forty years ago, is still very little used, especially in the hospitals. One reason is that the average surgeon does not care to call upon outside assistance, and prefers to take his chances with a bandage or by wiring. Another is that the splint costs from \$5 to \$15, and it is deemed more economical to keep a patient from six to ten weeks in the hospital than to spend the above amount and discharge him in ten days with instructions to call at the dispensary once a week until cured.

The first cast I have to show is in the nature of a "shocking example." The patient was admitted into one of the hospitals in this city with a double fracture of the lower jaw. The fragments at the side overlapped, and the surgeon simply stitched the periosteum together and put on a bandage, nothing being done for the fracture at the median line. After two or three weeks the patient escaped, and fortunately entered a hospital where they were more enlightened. Then the condition shown by this cast was revealed. There was extensive necrosis in the median line, and after the surgeon removed it a small splint was made, and a speedy union resulted. The overlapping bones on the side were so adherent that nothing could be done, and the

patient will have to go through life with only two teeth that he can bring into apposition.

This cast is a typical case, and shows how perfectly a splint will work when the dental surgeon has charge of the case at the beginning. The horizontal fracture on the right extended part way into the ramus, and was the most difficult to reduce on account of the effusion.

This is from a case in the service of Dr. Pilcher at the Seney Hospital. The patient was thrown from a truck, striking with his jaws against the curbing. There were three fractures in the lower jaw, and the alveolar process of the upper jaw was broken from the left canine to the right wisdom tooth. This was again subdivided into four pieces. The front fragment, containing two teeth, was removed.

The swelling was so great that no impression could be taken for a week. The splint was inserted thirteen days after the accident, and thirteen days later was removed, the fragments being so well united that the patient could masticate quite comfortably. Since then I am informed that necrosis developed at the angle. This was removed without separating the bone, and the articulation was unimpaired. Considering the extent of the injury and the number of fragments to hold in place, I consider that the time, twenty-six days, comes very close to making a record.

This cast of an upper jaw shows what may result from the unskilful extraction of a tooth. The fragment, as you will see outlined, composed the floor of the antrum and a section of the hard palate about one inch wide, extending to the median line. This case was not seen until a week after the accident, and there was a considerable amount of sloughing. The splint was made so as to bring a certain amount of pressure upon the hard palate. This was worn for seven weeks, with, as you see, a perfect result.

Here is a splint made for another purpose. The patient, a young woman, was in Dr. Pilcher's service over three years ago. It was decided to remove one-half the lower jaw, including the condyle. Two impressions were taken before the operation, and this splint was inserted immediately after, holding the remaining half of the jaw in its natural position. Three weeks later I placed in position an artificial substitute for the lost bone, and to-day the patient shows no deformity from a full face view, and declares that she can talk and eat as well as ever. This will demon-

strate that where one-half or more of the lower jaw must be removed, there is no excuse for the terrible deformity that invariably follows.

LA GRIPPE IN CHILDREN.

BY W. L. CHAPMAN, M.D.

Read before the Section on Pediatrics of the Medical Society of the County of Kings, February 8, 1901.

I have chosen the subject of "La Grippe" this evening; not with the hope of adding anything that is new to the subject, but to refresh our memories of the past, to recall the experiences of others and to excite a discussion upon a problem which we are facing at the present time.

Definition.—It is a contagio-infectious disease of doubtful bacterial origin.

History.—For the history of the various epidemics, the members are referred to Earl, *Archives of Pediatrics*, March, 1892.

Etiology.—The exciting cause of la grippe is undoubtedly a specific micro-organism, the exact nature of which seems yet to be in dispute. Many good authorities accept the bacillus of Pfeiffer and Cannon, while others of equal ability are unable to find any constant organism.

There is no doubt that certain atmospheric conditions favor the development of "epidemic influenza." The present epidemic is a fair example in proof of this. During the past two months the weather has been extremely variable, alternating from damp easterly winds to dry westerly winds, which blew the dust of the streets about like sand storms. This dry, dusty weather I believe to be as favorable to the spreading of grippe as the dampness. During this dry weather patients suffering from grippe expectorated in the streets, the expectoration rapidly dried, mingled with the dust and was blown about to be inhaled into the air passages of the passers-by.

The disease is not only infectious but contagious as well, and age, sex or conditions of life has little influence over it.

I here record the death of an infant seven days old which I believe to have been due to direct contagion.

Case.—The mother was suffering from an attack of grippe at

the time of her confinement. On the morning of the fifth day the child became very cross, and refused the breast. Towards noon it began to sneeze and cough, the cough being short and high pitched. About 8 P.M. it had a slight convulsion. Physical examination revealed only roughened breathing over entire thorax. Nose was running and eyelids swollen. Temperature per rectum was 105° . On the morning of the sixth day the symptoms were aggravated and the child appeared cyanotic. Physical examination revealed roughened tubular breathing but no râles. Temperature per rectum was $105\frac{3}{4}$. During the day the child grew steadily worse, and about 1 A.M. of the seventh day it was again seized with convulsions and expired, apparently from asphyxia.

It has been noted by several observers, especially Earl of Chicago, and Crandall of New York, that certain epidemics attack children more than do others. The present epidemic seems to be attacking children as much, if not more, than adults.

Pathology.—Few post-mortem findings have been recorded in children. About all that has been noted is venous congestion of the mucous membrane of the respiratory system and alimentary canal. In cases with marked gastro-intestinal symptoms, enlargement of Peyer's patches was noted. Cerebral hemorrhages have been recorded.

Great loss of weight has been noted by nearly all observers, the loss being greater than in any other infectious disease of equal duration. Earl, in "The American Text-Book of Diseases of Children," attributes this loss of weight to the conflict between the system and the disease. It might also be accounted for by the interference with nutrition due to the disturbances of the digestive system.

Certain cases occur, in which the digestive system is not especially deranged and the temperature changes not marked, and yet this extreme loss of weight takes place. This loss has suggested to me the idea that this loss of weight might be further accounted for by the action of the toxin upon the trophic nerve centers.

Symptomatology.—This is so varied and complex that it seems almost impossible to give any clear description of the clinical history. Probably grippe in infants does not differ much from that found in adults, but the symptoms are almost entirely objective. Clinically, we meet with four types of cases, viz.: (1) Cases affecting chiefly the respiratory system, (2) cases affecting

chiefly the digestive system, (3) cases affecting chiefly the nervous system, (4) cases of severe toxemia not referable to any distinct system.

A large percentage of the cases have two or more of these systems affected at the same time, or alternately.

Respiratory System.—The cases affecting chiefly the respiratory system are the most common. Crandall, *Archives of Pediatrics*, Vol. XIII., page 912, has described the typical symptoms of this class as coryza, sore throat, fever, muscular tenderness and prostration.

These symptoms need no comment. Unfortunately, a large percentage of our cases are not typical. These symptoms may be associated with symptoms belonging to the digestive and nervous systems.

Cyanosis occurs in many cases even when no complications are evident.

The respirations are rapid and superficial, and are often accompanied by the expiratory moan. This is probably due, in part, to the muscular tenderness experienced upon distending the thorax, the child guarding itself against deep inspirations.

Headache and earache are almost constant symptoms.

Deglutition is often difficult owing to enlargement of the tonsils.

Digestive System.—The symptoms in this class of cases may closely resemble those of cholera infantum met with in the summer months. The onset is more sudden and may be accompanied with chills. The temperature runs higher, and the prostration is more marked and earlier noticeable. The vomiting sets in abruptly and may be very persistent. The stools are accompanied by severe, colicky pains and contain stringy mucus and sometimes blood.

Abdominal tenderness with rigidity of the recti muscles may be marked.

These acute symptoms may be preceded for several days by loss of appetite. The child may refuse food almost entirely, craving only cold water.

Nervous System.—In this class of cases the most common symptom is insomnia with restlessness. Often, for some time before the nature of the case can be determined, the little patient will refuse to go to sleep. Whether rocked or laid upon the bed, it will lie with its eyes open, staring vacantly around the

room. Earl mentions a case in which the child did not sleep for four days and four nights.

Muscular twitching is common. Irritability of temper is marked. Children prefer to lie quietly in one position. Changing their position or fondling them elicits sharp cries, probably from the muscular tenderness. Bright lights and loud noises annoy them, and they are easily frightened by strange faces.

The nervous system is affected more or less in all cases, and the symptoms referable to other organs aid greatly in making the diagnosis. Cases in which both nervous and digestive systems are involved, often appear drowsy and apathetic, simulating typhoid, and taking frequent short sleeps from which they awaken with startled cries.

• *Toxemic Cases.*—This class of cases, which is the gravest we have to deal with, may be ushered in with either convulsions or collapse. Distinct chills are frequent. Partial or complete suppression of urine is an early symptom. In four of the cases which I have seen, during the present epidemic, the only symptom for which I was called was suppression of urine. The exact duration of the suppression could not be ascertained, but would range from twelve to twenty hours; the usual statement of the mother being that the child had not passed water all day. On inquiry, it was found that the patient was restless and without sleep during the previous night. The suppression was not complete, but the urine remained scanty and high colored throughout the attack.

Two of these cases developed peritonitis and terminated fatally, I have referred to them again under complications. Two recovered, but the convalescence was slow and bronchitis persisted for a considerable time. All four cases were under one year of age.

Symptoms Referable to All of the Above Classes.—Of these two deserve especial mention, *viz.*: Prostration and the musculo-articular tenderness. These two are constant symptoms and of marked diagnostic value.

The prostration is an early symptom and seems entirely out of proportion to the severity of the other symptoms. It not only appears early but remains for a considerable time after the other symptoms have subsided. It is undoubtedly due to the depressing effects of the toxin upon the nervous system, as it appears often before there is any interference with alimentation and before the fever could have produced its exhausting influences.

The musculo-articular tenderness often precedes any other symptom for several days. It shows itself in infants by their dread of being handled. It may partially account for some of the restlessness and insomnia.

The temperature does not seem to be much of a guide, either to the diagnosis or the severity of the infection. It varies greatly. An English observer has recorded a temperature of 110° , while many cases of sub-normal temperature are on record. It may be very irregular and subject to marked remission, especially during convalescence. The average temperature in uncomplicated cases is about 102° to 103° . It is highest in the toxemic class and lowest where simply the upper air-passages are involved.

The circulatory system early shows signs of depression. The pulse in infants differs greatly from that found in adults. In adults the pulse is rapid and bounding with high arterial tension. In infants it is rapid but feeble, lacking arterial tension.

Complications and Sequelæ.—These are numerous and varied and may affect any organ or function in the body. In cases affecting the respiratory system, bronchitis and pneumonia are the most common complications.

Middle ear infection is common, frequently causing rupture of the tympanic membrane with profuse muco-purulent discharge.

Enlargement of cervical glands is also common, due probably in many cases, to the absorption from the middle ear infection.

Conjunctivitis occurs in a large number of cases. It is usually mild but may persist and require especial treatment.

Cases affecting the upper air passages greatly favor the development of adenoid growths. I have seen one case in which an attack of grippe caused a return of adenoids nearly a year after I had removed them.

Suppuration of the antrum and frontal sinuses has been recorded.

In cases affecting chiefly the digestive system, complications are fortunately rare. The gravest of them is peritonitis. I have mentioned two cases of this complication. One was in an infant aged three months, and the other in one aged eight months. Both proved fatal. The one aged eight months died on the fifth day in collapse, while the one aged three months lingered for eleven days, when it developed pneumonia and died in convulsions.

The intestines remain irritable for a considerable time after the acute symptoms have subsided. The stools contain strings and jelly-like masses of mucus indicating the persistence of a sub-

acute catarrhal colitis. Prolapse of the rectum is a frequent sequel.

In cases affecting chiefly the nervous system the most common complication recorded is meningitis.

Chorea is a sequel in older children. I have seen one case of acute anterior polio-myelitis. While I am unable to find any mention of this complication, I believe it to have been due to the grippe, as it occurred just as the acute symptoms were subsiding.

Acute mania is mentioned by some writers. This is not uncommon in adults, but seems to me rather difficult to determine in young infants. The only mental sequel which I have noticed in infants is an indifference to their surroundings. Bright objects do not attract them as readily, and they seem to have lost all interest in their playthings.

Toxic Sequelæ.—In this variety of grippe, albuminuria is present in a large percentage of the cases and many of them develop true nephritis. This may occur even in the mildest cases. For this reason it would be best to examine the urine in all cases of grippe. Diseases of the skin are not uncommon, such as erythema, herpes, urticaria and purpura.

Rachitis has been known to occur in a number of cases, especially where the child was predisposed to it.

Anemia is almost a constant sequel, and is often persistent and very marked. Fatty degeneration of the heart has been recorded.

Diagnosis.—There are many cases that would never be diagnosed were it not for the fact that grippe was epidemic at the time. In cases affecting the respiratory system it has to be distinguished from simple coryza and pneumonia.

In simple coryza, the elevation of temperature is slight, if any; the prostration with musculo-articular tenderness does not occur. From pneumonia it is differentiated by the absence of physical signs.

Nasal diphtheria, or cases in which the diphtheritic membrane does not extend below the posterior nares, may easily be mistaken for grippe when this disease is known to be prevalent. In both the onset is sudden, the temperature runs high, the prostration is early and marked, and the pulse rapid and feeble. In diphtheria the nasal obstruction is marked, if not complete; the breathing being almost entirely by the mouth. In grippe there is snuffling, but not complete occlusion, and the breath lacks the

peculiar fetid odor of diphtheria. The face is usually flushed in gripe, while in diphtheria it is pale.

In the cases affecting the digestive system it is to be differentiated from typhoid fever. This, as a rule, is not difficult. In typhoid the onset is slow, while in gripe it is abrupt. Many cases of gripe appear drowsy and apathetic, closely resembling typhoid, but when the child with gripe is disturbed it becomes exceedingly cross and irritable, exhibiting the signs of the musculo-articular tenderness. In typhoid it remains indifferent. The abdominal symptoms in typhoid also aid in clearing the diagnosis. The rose colored spots usually appear too late to be of much diagnostic value.

The temperature in gripe is very irregular, while in typhoid it is regular and of itself diagnostic.

In the type of cases attacking chiefly the nervous system it is often difficult and sometimes impossible to differentiate it from meningitis. This is usually done by careful observation of the eyes, the lack of rigidity of the post-cervical muscles and the short duration of the attack.

(To be continued.)

ANOTHER PLAN OF STATE CARE FOR THE INSANE.

BY W. H. HAYNES, M.D.

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Being the Presidential inaugural address before the Brooklyn Society for Neurology, January, 1901.

That there is a lamentable amount of ignorance in the profession on the subject of insanity, no one will deny; and that the rate of recovery, particularly in the early stages of the various forms of insanity, does not rank with the percentage of cures after the ordinary diseases of life and general surgical operations, is a well-established fact. For instance, take the latest published statistics of the New York State Commission in Lunacy; out of a total admission that year of 4,473 cases, not including transfers, 1,018 recovered, or less than 25 per cent.; or out of 2,118 cases considered curable on admission, only 1,002 were cured—less than

50 per cent. It is on these two propositions that I shall base the following remarks:

I will take the second proposition first, and inquire what is the present plan of caring for the insane patients by the State, and the wherefore of the low rate of recoveries?

To begin with, we have an enormous building, filled to the full with patients, and manned by a small staff of doctors, in the proportion of one to two hundred patients, who combine the duties of executive, police, physician, and officer of the day, any one of which might fully occupy his time daily. It is composed, first, of a medical superintendent, whose time is well occupied with executive duties and wise monthly conferences on crockery, insurance, boilers, railroads, etc., and, under him, mostly a changing number of young men, who may have had an experience of a year or two in a general hospital, where they chiefly saw acute cases of illness or surgical disease, none, or very little, of a chronic ailment, immediately placed in charge of a class of cases they know nothing about, and of a most complex nature, requiring the highest attributes of a matured physician, clinician, and acute observer, and involving such intricate subjects as autoinfection, chronic infection, arterial disease, syphilis, chronic Bright's, organic nervous disease, all kinds of acute infections, shock, and trauma.

We will grant that after five years' experience in such a career they must have gained some knowledge of this class of cases, and imbibed all the knowledge their superiors have to impart, or that they have managed to dig out of journals and books, with the result that they have attained to a higher grade in the service, more pay, and have fallen into the same uniform and weary round of routine duties of daily call, examinations, notes, day duty, and police, not far removed from those of a head keeper or custodian in a prison. Is it any wonder that they leave the service or fall into desuetude, ennui, idleness, and even insanity? Their future prospects simply consist in the hope of some day occupying the superintendent's office, or else joining that exclusive set of alienists who know insanity when they see it, believe it to be utterly incurable, and nothing else. No branch of medicine ever flourished under such conditions, and never will. They become victims of the life they lead, habits they form, and convictions that are forced upon them, that the largest portion of our insane patients are hopelessly ill, are chronic cases, and very little can be done for them, and that chiefly perfunctorily. Is it any wonder that the result in the cure of their patients is such as it is?

What would not the world have missed if Charcot had so regarded the vast wealth of material of which he made such valued use in the great almshouse of Paris at Salpêtrière?

That the State hospitals are themselves at last waking up to this state of affairs, is shown by the reports we are receiving showing that they have called in outside help for their gynecological, surgical, and ophthalmological cases; and next it will be for their tubercular, typhoid, diphtheria, beri-beri, and other cases of a medical character, in which such great advances have been made by the profession at large, and altogether outside of institutional walls.

What hospitals of a general character, those bee-hives of industry, would ever flourish under such a state of affairs! It is the old story of the county farms over again, only greatly refined, which have been swept out of existence in all progressive cities, never to return, and in their places fully armed and equipped up-to-date institutions in their stead. That this radically wrong state of affairs is recognized, is witnessed by such men as Krapelin in Germany, and the States of Maryland, Michigan, Minnesota, and New Jersey, where already the doom of such caravansaries is sealed, and in their places are building numerous small institutions manned in the manner to be described.

Now, have I anything to offer that will improve this condition of affairs, namely, to increase the knowledge of these maladies among the profession, and to increase the number of cures in this class of cases? I will state my plan, and leave you to judge.

To begin with the plan of building. There should be in or close to all large cities one or more now so-called psychopathic hospitals, or detached wards, in connection with all the large hospitals, like the alcoholic wards and private rooms, for the detention and care of recent acute and curable cases: for the chronic demented and incurable, farms and villages, such as Gheel and Son-yea. In other words, doing away with the large pile of buildings in which we now detain these life-long patients, and put them out to fresh air, freedom and life. I would man these hospitals and detached wards the same as other hospitals and wards are manned, with a resident house staff of hospital post-graduates, with terms of twelve, eighteen, or twenty-four months of service, the shorter the better, consistent with the knowledge to be gained and with a small stipend, with board and keep, guided and instructed by a corps of attending physicians and surgeons, the former specially skilled in this class of sickness, and

the latter when needed, each taking their services at regular intervals, say of three months, or continuously, and, as now, without pay, the executive duties being in charge of a superintendent or matron or steward, and druggist. For the villages a government similar to Gheel or Sonyea would be my pattern.

Now, what would be the advantages of such a scheme? In the first place, there would be a wider diffusion of knowledge of the subject among the profession, especially of the younger men; a greater and continuous experience gained by the attending staff; and the patients would reap the benefit of change of personality, ideas, and course of treatment, which is often found of benefit, both outside and inside hospital walls, in all classes of disease and accident.

But all this aside, without going into the question of large or small buildings, or their location, other than they are, I will take the conditions as they exist, and we will retain the superintendent and assistant with all their present executive duties and prerogatives, only with a paid non-resident pathologist or pathological director, also a druggist and with a house staff of hospital graduates in sufficient number to properly attend all the patients, appointed after a competitive examination with a year's service under the tutelage of a regular attending staff of neighboring physicians and surgeons appointed by the trustees, especially fitted for giving special attention to this class of patients, taking duty regularly in turn or continuously, as is the present system in all general hospitals, making them hospitals in fact as well as in name, and not places of hopeless confinement both for custodian and those committed there. The advantages of this plan are, in the first place, these young men, as they go out in large numbers as they would year by year, will have gained a good practical knowledge of the subject and be able to recognize and treat cases understandingly and properly, particularly in their incipiency, when the most good can be accomplished and thus remove the stigma of ignorance from the profession at large and from making such blunders as calling dementia, uremia; mania, typhoid fever; paranoia, alcoholism; and melancholia, neurasthenia; and the patients would have the advantage of recurring scrutiny and examination of trained observers who have the advantage of seeing all stages of the disease, both bodily and mentally from which they suffer, have the advantage of change in personality, mode, manner and kind of treatment which each member of the staff would apply, to the advantage of all, as we

see daily both in and out of other kinds of general hospitals in the treatment of common ailments, especially chronic ones.

On the score of economy as to cost of maintenance, I claim nothing; but I do claim an advantage to the profession as a whole and the patients in particular; I claim it is all on the side of my plan.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section in Laryngology, Rhinology and Otology.

WILLIAM C. BRAISLIN, M.D., EDITOR.

Third Stated Meeting, Thursday, Nov. 15, 1900.

ASTHMA, FROM THE STANDPOINT OF THE PRACTITIONER.

BY H. A. FAIRBAIRN, M.D.,
Attending Physician to St John's Hospital.

The failure to discover a lesion essentially characteristic of asthma has given rise to much speculation as to its real nature.

It would be a wearisome and unnecessary task to review the many theories of this disease which have been promulgated from time to time, as you are already familiar with them. But it may be of interest to recall the fact that they have a common basis, each being founded on some assumed etiological factor. These factors may be divided into two great classes, those which act directly on the respiratory center and those which act on a peripheral part in such a way as to influence the respiratory nucleus in a reflex manner. A large number of toxemias and focal irritations in various organs have formed therefore bases of argument. For example, one enthusiast states positively that the condition is due to uric acid in the blood and the high arterial tension it produces, and that clearing the blood of uric acid and keeping it clear are the only points requiring attention in the treatment. With equal fervor it is maintained in another quarter that a nasal factor is present in every case.

We might go farther into this controversy, but the results

would be the same with regard to many of the assumptions. An examination of them taken as a whole would enable us to arrive at a principle such as this, that irritation of the pneumo gastric nuclei or of the branches of the pneumo gastric nerves or some portion of the sympathetic system is the element in the production of the bronchial or vaso-motor spasm which is supposed to be the real state of affairs in this condition.

But these different forms of irritation are constantly met without asthma as a concomitant; and again where asthma exists with some form of this irritation present the removal of the irritant does not invariably abolish the condition. We discover, therefore, that the theory does not satisfy the facts. We must proceed a step farther in our reasoning. There must be some other element, some other factor added to make the chain complete. An examination of the family histories of these cases will reveal, in a large majority, the pre-existence of this condition in parents, grandparents or great-grandparents, or if we fail to find this we will be very liable to discover a history of hysteria, epilepsy, alcoholism and allied neuroses; or, in other words, we will find that we have nervous systems to treat which are characterized by marked instability. The slightest thing out of the ordinary tends to unbalance such subjects. This link produced, we will have made a marked advance toward the completion of our solution. But the objection may be raised that the same cause will produce a variety of troubles in these individuals. The answer to such is that "that which effects the specialization is the nervous constitution of the individual. Peculiarities of temperament and function are their characteristics." "The morbid localization, the neurologists attribute often, leaving out of consideration trauma, to anomalies of retarded development either of the peripheral organs or of certain regions of the brain which remain throughout life sensitive points and easily fatigued." An analogy between this disease and epilepsy is frequently pointed out. The paroxysms of each may come on with great suddenness in predisposed subjects. Emotions, such as grief, fear and prolonged anxiety, may be the immediate cause as well as physical factors in each. They both occur frequently during the night in the midst of a deep sleep. After a period of duration they may subside with the same suddenness that marked their advent—over-excitability is the temperament of each.

It is an interesting fact that traumatism may cause a profound nervous disturbance in an individual, at times, who shows no hereditary taint, but the condition thus established may be trans-

mitted to the offspring. The proof of this is well established in the case of epilepsy. The necessity for removing all faulty conditions which may act in a reflex manner is quite apparent. The importance of prompt attention to this detail is impressed upon us by the results of modern experiment as to the changes which take place in the nerve cell under the influence of fatigue. The nucleus especially has been shown to become darker and deformed. It is supposed that changes occur in both cell and branches. As the condition of fatigue results from physical and mental irritation, among other things, it behooves us to remove such before organic change has gone too far. We have another fact as the result of our inquiry, therefore, that if the asthmatic condition is not corrected in its incipency we will meet with permanent organic change not only in the neurons, but also in the organs over whose functions they preside. The former may be indicated by attacks without apparent cause, or permanent dyspnea. We were told in former times by way of explanation of this that the bronchial muscles had acquired a habit of contracting, the trade spasms being adduced as examples of this so-called habit in other muscles.

Let us examine the changes that will occur in the respiratory and vascular organs as a result of the asthmatic condition. They are the result of obstruction in the respiratory tract. First there will be the bronchial spasm; secondly, hypertrophy of the bronchial muscles with exfoliation of the bronchial epithelium; thirdly, fibrinous exudate with plugging of the bronchioles; fourthly, dilatation of the air vesicles; fifthly, breaking down of the septa between the air vesicles with destruction of capillaries; sixthly, hypertrophy and dilatation of the right side of the heart with all the sequelæ.

The treatment of asthma, therefore, will depend upon the stage of the disease. In its incipency a neurosis characterized by bronchial or vaso-motor spasm, it may yield to removal of focal irritation in distant organs, together with judicious treatment of special symptoms and general tonic treatment.

If allowed to progress the result will be a case characterized by organic change in nervous system and various organs, and the outcome will not be flattering under any treatment. To one holding this view of the matter, the claim that it is only necessary to clear the blood of uric acid, or to reduce dilatation of the heart, or to bring to bear one of certain special measures to cure the condition, is not very convincing. In a recent work

ninety-six different remedies are mentioned as used in the treatment of this disorder. A study of them will reveal the fact that many points are aimed at. It will suggest the multiplicity of underlying causes and at the same time indefiniteness of view as to the indications to be met.

Oliver Wendell Holmes, in his book on "A Hundred Days in Europe," gives a humorous account of his experience with the disease. He says: "I am glad to tell my story about it, because it enables me to thank collectively all those kind members of the profession who trained all the artillery of the pharmacopœia upon my troublesome enemy from bicarbonate of soda and Vichy water to arsenic and dynamite." With all that was done for him he found most relief from the smoke of one of the many powders manufactured for this purpose. But it is fair to add in his case that, although he had not had an attack for years, he felt sure that he could not escape it if he tried to sleep in a state-room. He did not escape it, though he occupied the room alone and had the upper berth removed. He never lay down at all while at sea, spending his nights in the saloon. The emotional element is certainly here marked.

To sum up, asthma may be regarded as an affection of the nervous system characterized mainly by paroxysmal dyspnea produced by spasm of the muscles of the smaller bronchi or vasomotor system—a reflex neurosis occurring chiefly in persons with inherited instability of the nervous system, the focus of irritation being central or peripheral.

Permanent organic change may take place in respiratory, vascular and possibly in the nervous system, in consequence of a long continuance of the condition.

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ASTHMA, FROM THE STANDPOINT OF THE RHINOLOGIST.

BY W. F. DUDLEY, M.D.

It is universally admitted that the anatomical and physiological relations of the nose and the lungs favor the exhibition of reflex symptoms in the lower respiratory tract from irritation in the upper air passages. This is especially true in persons of a neurotic temperament.

The most vital function of the nose is respiration, rather than olfaction, or the production of vocal resonance. Its complex system of blood channels permits the storage of a comparatively large quantity of blood, within venous sinuses, so near the surface and so slightly protected from the constant and sudden temperature changes of the respired air current, that Nature finds the task of accommodation oftentimes over-great. It is not illogical then, that in these susceptible structures, situated at the very portal of the respiratory tract, a slight departure from the normal may cause disturbances of a reflex character.

A moment's consideration of the nerve connection between

the nose and the lungs furnishes a further endorsement of their intimate association. The secretion and possibly the nutrition of the nasal mucous membrane is controlled mainly by the trigemini, whose large area of distribution marks it as one of the most important of the cranial nerves. It has numerous anastomoses with the sympathetic system, namely, with the ophthalmic ganglion, with Meckel's ganglion, and with the cavernous plexus. Its roots spread to the bulbar spinal apparatus, where it is connected with the nerves that originate in the medulla oblongata. (Burnett.) The sphenopalatine, or Meckel's ganglion, which distributes roots to the nasal mucous membrane, is connected with the superior cervical ganglion of the sympathetic and with the pneumogastric, whose fibers supply in part the larynx and the lungs. I offer this very incomplete statement to show that there is a complex but free anastomosis of the nerves of these two organs, and that there exists the essentials for reflex action, namely, an efferent motor nerve, an efferent sensory nerve, and between the two the reflex center connecting them in the spinal cord.

When there exists an abnormal and excessive activity of the nervous system, due either to disease of the terminal nerve filaments, the nerve trunks, or the nerve ganglia, the reflex impulses become exaggerated and result in extreme vaso-motor or sensory disturbances. Then asthma becomes a possibility; but for its production it is essential that there shall exist a degeneration of nerve tissue.

The frequent concurrence of reflex disturbances with intra-nasal disease was recognized early in the present century, but that such conditions could cause asthma was not proven until 1870, when Voltolini cured a patient of asthma by clearing his nose of nasal polypi. After that date reports of cures of asthma by the radical treatment of intra-nasal defects accumulated to a degree that induced some rhinologists, who were endowed with more enthusiasm than judgment, to greatly overestimate the importance of intra-nasal disease as a causative factor in the production of asthma. This outburst of zeal for gaining renown for our specialty reached a climax when Dr. Bosworth, in 1889, in his work on "Diseases of the Nose and Throat," announced quite positively that "all cases of asthma find their predisposing cause in intra-nasal disease." He says: "I have never known a case of hay-fever or of asthma to occur in other than an obstructive lesion of the nose." He modestly admits that "this may seem rather a broad statement."

In marked contrast to this questionable statement we would cite the moderate and cautious claims made by Dr. Jonathan Wright in his paper upon "Neurosis of the Upper Air Passages," in the "American Text-Book of Diseases of the Nose and Throat." He says: "He has seen cases of asthma in which no nasal lesion was present, and few cases of the trouble in which an entire and permanent cure resulted from intra-nasal operations on existing lesions. The neurosis is frequently the initial phenomenon, and the polyp or hypertrophy, a secondary or resultant lesion." "Excessive and long-continued vaso-motor disturbances lead to the demonstrable and permanent damage of the fibro-muscular walls of the vessels and of the stroma of the erectile tissue of the nose. Low grade inflammatory fibrous tissue takes the place of the elastic fibers of the normal stroma. It also encroaches upon, displaces, causes absorption of, and hinders the functional action of the smooth muscular tissue in the stroma and walls of the blood vessels. Not only does it do this, but as a consequence the serous fluid thrown out from the vessels is finally, after repeated attacks, not absorbed, but remains as a permanent edematous infiltration of the stroma; and the cavernous spaces remain permanently dilated, owing to paresis of their walls even after the vaso-motor storm has for the time passed away.

One cannot refute the possibility of this logical sequence of long continued or recurrent vaso-motor disturbance; but it is practically impossible to determine by examination of those who apply to us for treatment whether the nerve degeneration or the nasal obstruction was the primary lesion.

Judging these cases empirically, I think that nasal obstruction, with the consequent surface irritation and the impairment of the oxygen supply, is quite capable of inducing a neurotic tendency, and possibly, if marked and progressive pressure existed, of causing a pathological condition of terminal nerve filaments. That it brings about an extremely irritable state of the general nervous system is beyond any doubt. The proposition that the obstruction may be the cause and not the result of the neurosis, is far more certain in those cases in which the obstruction is due to an exostosis or to deflection of the nasal septum. It cannot be claimed that vaso-motor paresis or other neurosis plays any rôle in their causation.

Obstructive lesions in any portion of the nasal cavities may provoke spasmodic asthma, but the areas especially responsive to pressure are stated by Mackenzie, Roe, Longuet and other author-

ities to be the middle turbinated body, the posterior portion of the inferior turbinated body, and that part of the septum supplied by the spheno-palatine nerve. Hack regards the anterior third of the inferior turbinated body as the most sensitive area. W. P. Meyjes, of Amsterdam, refers the origin of reflex disturbances to the anterior part of the middle turbinated body. Even in health there is but little space between this tissue and the septum, and he observes it is very often decreased by hypertrophy of the septal mucous membrane at this site, the tuberculum septi, which is defined by Zuckerkandl as a localized accumulation of mucous glands. Bosworth tabulates 46 cases of asthma from nasal reflex, showing the following pathological conditions:

Hypertrophic rhinitis	13
Nasal polypi	11
Hypertrophic rhinitis and deflected septum.....	11
Polypi and deflected septum.....	6
Deflected septum	3
Adenoid and hypertrophic rhinitis	2
<hr/>	
Total	46

The following is a record of twenty-six cases of my own:

Hypertrophy of the posterior extremities of inferior turbinate body	6
Hypertrophy of the middle turbinated body.....	7

(In two of these there were large synechiæ, and four had suppurating ethmoiditis.)

Nasal polypi	6
(The polypi were attached in five of these to the middle tur- binate and in one to the inferior.)	
Septal spurs and ledges (all osseous).....	5
Deflected septum	2
<hr/>	
Total	26

The most severe and obstinate case I have ever seen was one with bilateral enlargement of the middle turbinated bodies, and synechiæ. A large amount of tissue has been removed at the points of contact, and each excision gave some temporary relief from asthma, but the spasmodic attacks have invariably recurred, and treatment has been resisted to a degree that is discouraging.

My results have been most satisfactory in those cases of polypi in which the removal of the neoplasms could be positive and complete, and in those cases having septal spurs or ledges. In this latter class the prognosis is good because a radical operation upon bone promises a more permanent relief from pressure than when one has to deal with soft tissues, since a recurrence of their hypertrophy is not uncommon.

While intra-nasal obstruction is perhaps the most frequently occurring condition that induces patients to seek special treatment, only a very small percentage complain of asthmatic symptoms, which is a fact for congratulation and thanksgiving for both patients and physicians. I should estimate that not more than one-half of 1 per cent. of the cases of intra-nasal pressure which I have seen related a history of asthma, and approximately about 20 per cent. of the cases of asthma I have examined had no intra-nasal defect which warranted surgical interference. The records of the general practitioner would doubtless show a much larger percentage of cases in which the reflex irritation was not of nasal origin. Statistics are always a very fallible source of information, but they will vary also with the nature of the work followed by the observer. It is well to bear in mind, then, that the importance of nasal reflex as a cause of asthma will naturally be overrated by the rhinologist, and will be underestimated by the general practitioner. As a corollary, it may be added: "That we can have asthma and decided nasal lesions in the same individual, and there may be no etiological connection between them." (Burnett.)

The nasal cavities contain areas of natural selection for the development of reflex symptoms, but in less degree they may originate in any diseased body tissue. To aid the rhinologist in reaching a positive conclusion in his diagnosis the following rules, suggested by Schmiegelow and endorsed by Lennox Browne, will be found helpful:

An affirmative relation between the nasal lesion and the pulmonary affection may be assumed:

1. When the asthmatic symptoms occur or are aggravated with any increase of the nasal symptoms.
2. When the application of cocaine to the area of contact in the nose arrests the asthmatic symptoms.
3. When the local treatment of the peripheral irritation in the nose definitely checks all pulmonary symptoms.

TREATMENT OF ASTHMA.

BY J. S. WATERMAN, M.D.

The careful physician realizes that he must not only exclude the many forms of dyspnea which simulate this condition, but that, having made a diagnosis of asthma, he has still to determine the variety and seek its cause if his treatment is to be intelligent and his efforts crowned with success. Osler considers that the term asthma should be confined to the form known as bronchial asthma, and Riegel considers a primary and secondary or reflex asthma: "In the primary cases the attack being the direct consequence of an abnormality of the respiratory center, or of its paths of communication, while in the secondary cases the abnormal excitation of these paths takes place reflexly."

Whittaker considers it extremely doubtful if there is really such a thing as an idiopathic, or primary, essential asthma, every year narrowing more and more the number of so-called idiopathic cases.

In the treatment of asthma a reflex cause should be diligently sought and a diagnosis of idiopathic asthma should be accepted only after all possible reflex causes have been excluded.

The immediate treatment of an attack of asthma resolves itself into an effort to relieve the patient and to make him comfortable. All of these efforts are based on the two theories of spasm and of hyperemia.

Inhalations of nitrite of amyl, if early in the attack, will often give immediate though temporary relief. Fresh air and oxygen are most important. Chloroform and ether may be used in severe attacks. Cures have been reported from the continued use of inhalations of chloroform, and there have been some disastrous results reported.

Iodide of ethyl is highly recommended. Stramonium and nitrate of potassium are much used, and are said to be the bases of most of the asthma cures.

Fumigations of the powders or a cigarette will often afford the greatest relief, which may last for several hours.

Morphine will give immediate relief, but should be used only in the most severe cases, owing to the tendency to rely upon it and thus form a morphine habit. Nitroglycerine, atropine, pilo-

carpine, hyoscine and chloral hydrate are of great value. Lobelia, grindelia robusta, quebracho, ipecacuanha and the bromides are useful and often indicated.

Extract of suprarenal capsule, both internally and as a nasal spray, has given brilliant results. Cocaine used as a spray in the nose will at times give immediate relief.

In the intervals between the attacks the iodides of sodium or potassium, or syrup of hydriodic acid often act almost as a specific in preventing recurrence of the attacks. I have found that combining strychnine sulphate to toleration with the iodides has given most satisfactory results. The stomach, intestinal tract, sexual apparatus, heart, kidneys and skin should be examined with the greatest care for any abnormality which may act as an exciting cause. Much has been said of late about the connection of the uric acid diathesis in these cases.

The nose, pharynx, naso-pharynx and larynx have proved good hunting-grounds for this kind of game, and brilliant successes have been scored in this field by the rhinologist.

Brilliant results have been reported from the removal of adenoids, tonsils, septal spurs, hypertrophied turbinated bodies, polyps, tumors, synechias and treatment of diseases of the accessory sinuses.

The report of a case referred to me a year ago, a boy aged 11, will serve to demonstrate the satisfactory results we may sometimes get from nasal operations. This boy gave a history of asthmatic attacks coming on every night, and said that he could not remember having gone through a whole night in his life without an asthmatic attack. Upon examination I found a slight deviation of the septum to the left, with a large spur and synechia on the left. There was a moderate adenoid growth. The adenoid was removed, but without relief from the asthmatic attacks. The spur and synechia were removed and he was given syrup of hydriodic acid. There was almost immediate relief from the attacks, and the patient said he was able to sleep through the whole night without waking, for the first time within his remembrance.

Other cases, while not so entirely satisfactory as this one, have been greatly benefited by the removal of nasal spurs and adenoid growths, as the attacks have been milder and of less frequent occurrence.

Each case must be studied individually, and great are the

personal satisfaction and pleasure of the physician when he can deliver a patient from such an affliction.

Dr. Hoople: I have had a great treat in listening to the excellent papers presented; and if I consulted my inclinations would prefer to sit as a listener, but lest my silence should mean failure to appreciate I consent to speak my unqualified delight at hearing these excellent papers. I have been especially pleased with Dr. Fairbairn's paper presenting the subject from the general practitioner's standpoint. No doubt the disease and its treatment belong essentially to him, since the starting point of the trouble is, as he has shown us, in the condition of unstable equilibrium of the nerve elements in these asthmatic subjects. When the patient has had that thorough treatment from the specialist's side of the case, that Dr. Dudley has so well advocated, then there remains only that sort of management of the general health which belongs to the general practitioner. There is a great deal to be done for any poor sufferer of this kind in the way of putting him in possession of the best way of living to reduce his unstable equilibrium to the smallest amount possible. It would seem to us that these cases ought to have treatment begun upon them before they are born.

The point most emphasized by the discussion is the importance of recognizing the fundamental and constant lesion in the nervous system in all cases of asthma, and the necessity of relieving this element of the disease if we would cherish any hope of a permanent cure.

There is no doubt regarding the presence of a neurosis in every asthmatic patient; and also, that our duty is to include it in our treatment. If there is simply a general irritability or hypersensitiveness of the nervous system, or if there is a localized irritation of the peripheral nerves, it may be successfully diagnosed and treated. But in more grave disease of the nerves, when there is degeneration of the nerve tissue, either central or peripheral, it is no easy task to identify it and to locate it, and it is most difficult and often impossible to remedy the defect by therapeutic measures. Admitting that the neurosis plays the most important rôle in the etiology of asthma, it is not, however, in itself sufficient to cause asthma. For while all asthmatics are neurotic, the converse is far from true, and only a small percentage of neurotics exhibit asthmatic symptoms.

An abnormal nerve performs its function in an abnormal way. Thus, in bronchial asthma, we find a result which is out of all pro-

portion to the amount of irritation received by the peripheral nerves where the reflex originates. It is the experience of the rhinologist in treating patients having asthma, to obtain at times a most satisfactory and permanent therapeutic result, by the removal of a comparatively insignificant source of irritation in the nasal cavities. To illustrate this statement: I was consulted three years ago by the wife of a physician; she was extremely neurotic, and was much weakened from loss of appetite and insufficient sleep. She informed me that for the two months previous she had been obliged to sit upright in a chair each night, as the recumbent position caused at once severe asthmatic symptoms. The only intra-nasal defect was a sharp pointed osseous spur of the septum, which impinged upon the inferior turbinated body at the junction of its middle and posterior thirds. There was no evidence of marked local irritation, and the accompanying nasal catarrh was slight.

The excision of the nasal spur occupied but a few moments, and yet this very small operation has been followed by three years of freedom from asthma. The neurosis in such a case undoubtedly persists, but, if the local treatment of the cause of the nerve irritation eliminates the condition which starts the reflex, we may claim a cure of the asthma.

Bosworth reports the details of forty-six cases of asthma. Intra-nasal treatment resulted in curing twenty-eight, and in improving twelve of these cases. I can recall no other rhinologist who has had so fortunate or so successful an experience. But it is, nevertheless, true that the surgical treatment of intra-nasal defects in asthmatics so frequently affords relief that the rhinologist has in this disease an opportunity for work that is most interesting and encouraging.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section in Pediatrics.

WILLIAM A. NORTHRIDGE, M.D., EDITOR.

Thirteenth Regular Meeting, Friday, December 14, 1900.

The newly elected Chairman, Dr. E. H. Bartley, presided.

The scientific program consisted of a paper by Dr. Jerome Walker, on "257 Cases of Criminal Assault upon Girls; or Pretended Assault upon Girls."

The Doctor stated that he had seen over five hundred cases as physician to the Society for the Prevention of Cruelty to Children, and had taken these two hundred and fifty-seven cases, the records of which he could get at, for consideration.

He believed the testimony of the examining physician to be of the utmost importance; often leading to punishment, or clearing the innocent.

For instance, of the 257 cases, in 46 no assault had been committed, although a history had been given. Revenge or notoriety was the motive for the complaints. It is often very difficult to decide whether an assault has been committed or not. As to the ages of those assaulted, the range was from one year to sixteen. The largest number occurred between twelve and fifteen years. Occasionally the assailant was a relative of the assailed. Thus, in thirty-one cases the father assaulted; in seven cases the step-father assaulted; in four cases the uncle assaulted; in two cases the brother-in-law assaulted. In thirteen cases Italians assaulted; in one case a policeman assaulted; in three cases marines assaulted; and in four cases Chinamen assaulted.

According to the new law, under which convictions are obtained, any sexual penetration, however slight, in a girl under eighteen years of age, with or without her consent, is sufficient. Boys under fourteen years of age cannot be punished, except by being sent to a reformatory.

As to the diagnosis of sexual penetration, the Doctor made the following points:

1st. As to the condition of the hymen. Torn.

- a.* Is it recent?
- b.* Was it torn by fingers?
- c.* Is it elastic?
- 2d. Condition of fourchette.
 - a.* Normal condition in child is firmness.
 - b.* Is it very lax or torn?
- 3d. Condition of vestibule.
 - a.* Normally shallow in the child.
 - b.* Deep in case of repeated rape.
- 4th. Red spots (not general redness) in vestibule point to penetration.

Diagnosis may be made ordinarily, on tear in vagina, lax vestibule and red spots; but the element of injury from self abuse must always be considered and a corroborative history of the case is often needed.

The position of the assailant makes a difference in the amount of injury done.

As to force—in his large experience, he has seldom seen severe laceration; two or three cases only in five hundred. In girls of fourteen or fifteen; their stories are to be taken cautiously, as there are a number of cases of onanism mixed up with these cases of rape.

QUESTION OF CHILD PROSTITUTION.

The Doctor thought that in the movement for the repression of vice, we must reach and punish those who make a business of prostituting children. When connected with the Sea Side Home for Children at Coney Island, with Dr. Northridge he had seen many cases in the houses of prostitution who were brought from New York, because men preferred them. He said he had been informed that any number could be obtained, at any age, by merely sending an order for them, as one would send to an intelligence office. He had seen fifty-nine cases of child prostitution in this series of cases. Of these:

- One of nine years of age, a prostitute.
- Four were eleven years of age, confirmed prostitutes.
- Eight were twelve years of age, confirmed prostitutes.
- Ten were ten years of age, confirmed prostitutes.
- One was thirteen years of age, a confirmed prostitute.
- Fifteen were fourteen years of age, confirmed prostitutes.
- Seventeen were fifteen years of age, confirmed prostitutes.
- Three were sixteen years of age, confirmed prostitutes.

Some of the cases of criminal assault reported do not belong to the lower classes.

In some instances both girl and assailant belong to good families.

The Doctor recommends the following general procedure in examining these cases:

1st. On inspection.

Does vulva pout or not.

Note color of vestibule.

Note absence or presence of red spots.

Note condition of fourchette.

Note condition of hymen.

2d. On digital examination.

Note condition of vagina and its opening.

a. by index finger.

b. by little finger.

c. by probe.

3d. Note condition of clothing.

The introduction of a finger may be almost impossible. Vagina may be hyper-sensitive. Great care must be taken that no violence be used,

He believes that children are easily bribed. Cases occur in halls, stables, and like places. Certain children seem to like the notoriety arising from a case of this kind. He dwelt upon the difficulty of making out a case of assault, unless the case was recent. He thought that doctors attending dispensaries should report suspected cases to the Society for the Prevention of Cruelty to Children.

DISCUSSION.

The Chairman: The section is certainly indebted to Dr. Walker for this paper. We sometimes see these cases, and I am glad to get some light upon the subject. Dr. Hutchinson was down to open the discussion, but he has kindly given way to Dr. Gibbs, who comes from Manhattan, and who has had a large experience in connection with the Gerry Society.

Dr. Gibbs: I have been intensely interested by Dr. Walker's paper. I have necessarily seen a great number of these cases. In New York, juries will not convict on the testimony of the doctor alone. There must be other witnesses. We do not question the child, for fear that the lawyer for the defense will intimate that we have coached her.

In examining cases I believe that the condition of the vestibule and fourchette is of great importance. We do not examine girls over sixteen years of age for rape. The youngest child that I have examined was eight months old. Rape had been committed by her insane father, and there was complete rupture.

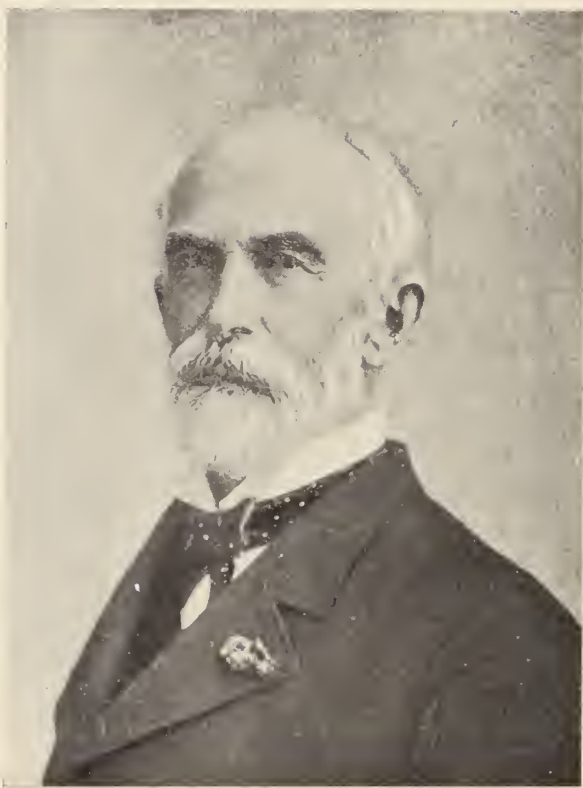
By recent penetration is meant one where the injured parts have not had time to heal. From three to ten days gives time to heal. The majority of cases that we see are not cases of recent penetration, generally weeks and months having passed before examination is made. This renders the case much harder to determine. In my experience gonorrhea is found in 10 per cent. of the cases. I believe all cases should be reported. I think we get but a small percentage of the cases that occur.

Dr. Edson: My experience with this class of cases has been very limited. I have seen a few cases in private practice, and a few years ago several cases were sent to the Society for the Prevention of Cruelty to Children, for temporary detention at the Home for Destitute Children. As the result of these examinations, I confess that there are very few cases, indeed, in which, from examination alone, I would dare to swear positively to criminal assault.

Dr. Chapman: The point raised in regard to dispensary physicians and physicians in private practice reporting these cases is an important one. It is not that we do not meet with these cases, but rather the dread of the witness stand, the fear of mistakes and the disinclination to meddle with patients' private affairs. I had one of these cases while I was connected with the Bushwick and East Brooklyn Dispensary, which I intended to report.

The case was as follows: A girl aged thirteen years came to the dispensary in the fourth month of pregnancy, and related the following story: Three weeks after her mother's death, her step-father took her to bed with him, and had been sleeping with her ever since. I informed her that I would notify the Society for the Prevention of Cruelty to Children, and frightened her into telling an aunt of hers.

The next evening her aunt brought her to my office, where she admitted that her step-father had had nothing to do with her; but that it was a boy about seventeen. Her motive in telling the false story was to spite her step-father, whom she hated, and at the same time shield the young man. I am glad that I did not report this case. The young man belonged to a very fine family



FRANK H. HAMILTON, A.M., M.D., LL.D.

and the case was well taken care of, outside of the courts. I simply mention the case to corroborate what Dr. Walker has said in regard to false statements being made for spite.

Dr. Walker: It is true that the doctor's testimony cannot always be taken. There is, however, a prevalent idea that a doctor knows much more than he does. When these men see that a doctor has examined the child, in a large percentage of the cases the fellow pleads guilty and thus helps the doctor out. I remember a case where a man had assaulted his three children. He fought the case until the County Court was reached and then committed suicide. In recent cases we tell whether there has been a rape or not by the signs of recent inflammation. It is quite common among Italians to believe that if a man has intercourse with a virgin he will be cured of gonorrhea. As to penetration, the District Attorney asks, "Has there been penetration?" You answer, "Yes." The lawyer on the other side asks, "Could that not have been caused by the finger?" Any entrance is a rape. If any gentleman can make any suggestion that will help to place this whole subject upon a scientific basis, I shall be glad to confer with him at any time.

HISTORICAL DEPARTMENT.

FRANK HASTINGS HAMILTON, A.M., M.D., LL.D.

The subject of this sketch, at one time in active practice in the city of Brooklyn, was born at Wilmington, Vt., September 10, 1813, and died in New York city, August 11, 1886. His father was Calvin Hamilton and his mother Lucinda. His first wife was Mary Virginia McMurran, who died April 8, 1838. On September 1, 1840, he married Miss Gertrude Hart, of Oswego, N. Y. She died July, 1885. Two children were born, Theodore B. Hamilton and Frank H. Hamilton, Jr., M.D.

Dr. Hamilton was educated at the Lancasterian School and Academy, Schenectady, N. Y., and Union College, graduating A.B. in 1830 and A.M. in 1833, receiving from the same institution the degree of LL.D. in 1869.

The study of medicine in 1830 at Auburn, N. Y., under the preception of John G. Morgan, M.D., was the beginning of a most successful career in the practice of the healing art, and he matriculated with the College of Physicians and Surgeons of Fairfield,

N. Y., and graduated M.D. from the University of Pennsylvania in 1833. He was also licensed by the Cayuga County Medical Society.

He began the practice of medicine in Auburn, N. Y., in 1833, and continued to practice in different parts of the State of New York until his death. From 1860-'62 his office in Brooklyn, N. Y., was at 108 Joralemon street.

During his professional life he was called upon to fill the following positions:

1861—Surgeon 31st N. Y. Infantry, U. S. Vol.

1862—Medical Director, Fourth Army Corps.

1862—Medical Inspector, U. S. Army.

1860-'75—Surgeon, Long Island College Hospital.

1861-'82—Surgeon, Bellevue Hospital.

1884-'86—Consulting Surgeon, Bellevue Hospital.

1882-'86—Consulting Surgeon, Hospital for Ruptured and Crippled.

1833-'59—Lecturer on Anatomy and Physiology, Theological Seminary, Auburn, N. Y.

1839-'40—Lecturer on Surgery, Fairfield College of Physicians and Surgeons.

1840-'41—Lecturer on Surgery, Geneva Medical College.

1846-'58—Professor of Surgery, Buffalo Medical College.

1860-'70—Professor of Surgery, Long Island College Hospital.

1861-'75—Professor of Surgery, Bellevue Hospital Medical College.

He was a member of the Medical Society of the County of Kings, 1861-'62; American Medical Association, President, 1877; New York State Medical Society, President, 1855; New York Pathological Society, President, 1866; New York Academy of Medicine, President, 1864; New York Medico-Legal Society, President, 1875-'76; New York Society of Medical Jurisprudence, President, 1885.

On March 30, 1860, Dr. Hamilton delivered the address at the opening of the Long Island College Hospital, and the address to the graduates in 1865.

His contributions to medical literature have been many; his first bound volume, so far as known to the writer, was published in 1845, small 16mo, of 69 pages, monograph "On Strabismus." In 1841 Charles C. Post, M.D., published a small, 16mo, of 67 pages, "Strabismus and Stammering." Both of these books are



WILLIAM WARREN GREEN, M.D.

in the library of Fred. D. Bailey, M.D., of this city, and are interesting on account of their age and the first effort in bookmaking of two physicians who were in after life looked upon as leaders in the science and art of surgery. Dr. Hamilton's bound volumes have been as follows:

- 1860—"Fractures and Dislocations," 8vo.
- 1865—"Treatise on Military Surgery," 8vo.
- 1872—"Principles and Practice of Surgery," 8vo.
- 1880—"Fracture of the Patella," 8vo.
- 1882—"Health Aphorisms," 12mo.
- 1884—"Medical Ethics," 12mo.

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

WILLIAM WARREN GREENE, M.D.

Little is known of the family history of Dr. Greene. He was born at North Waterford, Me., March 1, 1839, and died at sea, September 10th, 1881. He was educated at Gould's Academy and graduated M.D. at the University of Michigan in 1855.

In 1861 he accepted the position of Lecturer on Pathology and Practice in the Berkshire Medical College, and Professor of Surgery in the same, from 1862-'67.

1867-'68—Professor of Civil and Military Surgery, University of Michigan.

1866—Professor of Surgery, Medical School of Maine.

1872-'75—Professor of Surgery, Long Island College Hospital.

He was a member of the American Medical Association, Massachusetts Medical Society, Maine Medical Association, Detroit Academy of Medicine, Honorary Member New York State Medical Society.

His medical papers consist of "Greene's Illustrations of Surgery," 8vo; "Ligation of Veins," "Cases of Successful Extirpation of Bronchocele," "Report on Ovariectomy," "Successful Cæsarean Section," "Reduction of Dislocations and Cotton-Wool Dressing."

WILLIAM SCHROEDER, M.D.,
Sec. of Hist. Com.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

Dr. James J. Keyes returned the middle of August from a four weeks' vacation, camping in Canada.

Dr. William Waterworth spent the month of August hunting and fishing in the Maine woods, where he has found big game in past seasons.

Dr. Joseph H. Raymond took a trip to California the first part of the summer, and later spent some time in Pittsfield, Mass.

Dr. H. B. Delatour took a house at Bayshore for the season.

Dr. William E. Butler has spent the summer, as usual, at Prospect Heights, Shelter Island.

Drs. John A. McCorkle and George McNaughton are taking their recreation in Europe.

At the commencement of St. Francis Xavier's College, in Manhattan, the Xavier Alumni prize of fifty dollars for success in post-graduate work was awarded to Dr. Edwin H. Fiske, who carried off some of the honors of the graduating class of the Long Island College Hospital.

Dr. H. A. Alderton has removed his office to 142 Clinton street.

Dr. D. A. Harrison has removed to the Montague, 103 Montague street.

Dr. Walter Wood is fitting up a house, 1276 Pacific street, and will move in some time in September.

Dr. Ferdinand Siegel announces his removal to 82 Lee avenue.

On June 5th, Dr. Martin Linderth was married to Miss Het-tie L. B. Tiley of Essex, Conn.

The deaths must be recorded of Dr. Alanson T. Smith of 699 Greene avenue on June 17th, and of Dr. James W. E. Roby of 516 Bedford avenue, on June 25th.



JAS. WM. ED. ROBY, M.D.

Members of the Medical Society of the County of Kings wishing to obtain books from the library of the Surgeon-General, Washington, D. C., may do so by expressing such desire to our local librarian, Mr. Huntington.

The fourteenth International Medical Congress will be held at Madrid, April 23rd to 30th, 1903. The general Secretary is Dr. Angel Fernandez-Caro y Nouvilas, Faculty of Medicine, Madrid, to whom application may be made for further information. Membership fee is 30 pesetas.

At the request of the Surgeon-General of the army, the Secretary of War has directed that on all official orders and records, doctors serving under contract shall hereafter be designated contract surgeon in lieu of acting assistant surgeon, as heretofore.

The Brooklyn Society for Neurology closed its sessions for the summer by a very enjoyable visit, on the afternoon of June 27th, to the Long Island State Hospital, at Flatbush, where they were very agreeably and bountifully entertained by the ever welcoming Superintendent, Dr. R. M. Elliott.

The Association of Military Surgeons announces that the Enno Sander Prize for 1901-1902, which has been generously increased by its founder to consist of a gold medal valued at one hundred dollars, and one hundred dollars in cash, will be awarded for the best essay on the subject, "The most practicable organization for the Medical Department of the United States Army in active service." Competition will be open to all persons eligible to active or associate membership in the Association. Essays should consist of not less than ten thousand nor more than twenty thousand words, and must be in the hands of the Secretary by February 28th, 1902. Other information may be obtained from the Secretary, Major James E. Pilcher, Carlisle, Penn.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

THE TREATMENT OF FRACTURES. By W. L. Estes, A.M., M.D., Director and Physician and Surgeon-in-Chief of St. Luke's Hospital, South Bethlehem, Pa. New York, International Journal of Surgery Co. 1900. 216 pp., 8vo, cloth.

This is a small octavo book of 216 pages, constituting a series of papers upon the treatment of fractures, in which the author has endeavored to discuss the treatment of fractures; considerations of the supposed mechanics of individual fractures being omitted except when necessary to elucidate the treatment. The author endeavors to impress what has become a well recognized truism in surgery, namely, that the treatment of a fracture really commences before the actual "setting" of the broken bone, and may continue long after the process of repair is well under way, or even completed. In furtherance of this the opening paper is upon first aid and transportation of cases of fracture, and does not fail to give consideration to the question of passive motion to limbs in which the fracture occurs in the neighborhood of joints, although the views of the author upon the subject of early passive movements are not entirely in accord with those of many surgeons. The paper upon setting of a fracture is of a practical character. The advice to delay this until everything is in readiness to make a permanent adjustment seems scarcely necessary, however, and one can hardly see how the rubbing together of the fragments will be efficient in getting rid of shreds of soft tissue which may cling to the latter. The early use of massage is not advocated, atrophy of the limb being attributed to irregular pressure, rather than to the prolonged use of splints.

Individual fractures are dealt with in a series of papers, these being illustrated by skiagraphs. The latter are not infrequently unsatisfactory, even when these have been "touched up" by accentuating the outlines. In fact, the illustrations in the book are not of the high order which the eminently practical character of the book deserves, a fault which is probably due more to the press work and paper than to anything within the author's control. That upon page 67 (Fig. 7) must certainly strike the reader as

being far below the requirements in these days of high grade medical illustrating.

This work, embodying as it does the results of the large experience of a conscientious and painstaking surgical practitioner, is worthy of a better setting than has been given to it.

A MANUAL OF SURGICAL TREATMENT. By W. Watson Cheyne, M.B., F.R.C.S., Professor of Surgery in King's College, London, Surgeon to King's College Hospital, etc., and F. F. Burghard, M.D. and M.S. (Lond.), F.R.C.S., Teacher of Practical Surgery in King's College, London, Surgeon to King's College Hospital, etc. In seven imperial octavo volumes, with illustrations. Volume IV., 383 pages with 138 illustrations. Cloth, \$3.75, *net*. Lea Brothers & Co., Philadelphia and New York, 1900.

This is the fourth volume of this practical work, and is well up to the standard of the previous volumes. It is conveniently divided into two parts; the first dealing with the surgical affections of the joints, and the second with the surgical affections of the spine. Dislocations, sprains, and wounds of joints in general are set forth in clear and forcible language, after which this part closes with six full chapters on diseases of individual joints, the authors taking up separate joints and giving full and explicit directions as to the treatment applicable to each. There must necessarily be some repetition because of this arrangement, yet this need not be deemed entirely needless and detracts in no manner from the usefulness of the points.

In the second part, or that dealing with the surgical affections of the spine, five chapters are devoted to all of the common, and many of the rare, ailments with which the spine may be affected. Those which the general practitioner is most likely to meet with, namely, kyphosis, scoliosis, spina bifida, spondylitis and osteo-myelitis are treated of in a very practical manner, and this portion of the book cannot fail to form a good working guide for those, who although not called upon frequently to care for those conditions, yet feel it incumbent upon them to undertake their treatment. In furtherance of this, these chapters are written from the standpoint of the general surgeon and not from that of the specialist, and hence appeal to a large class.

There is a very complete index appended to the work which greatly facilitates ready reference to any of the subjects considered.

THE TREATMENT OF FRACTURES. By Charles L. Scudder, M.D., Assistant in Clinical and Operative Surgery in the Harvard Medical School. Second Edition. Revised, and enlarged. Octavo, pp. 433. Philadelphia and London: W. B. Saunders & Company.

That this admirable book has passed so quickly to a second edition is no surprise to those whose pleasure and profit it has been to become familiar with it as it appeared in the first edition. The author has succeeded wonderfully well in presenting to his readers what has been most successful whether original or otherwise, in his own hands, and the methods employed are such as to commend themselves to all surgeons.

The most pronounced and perhaps valuable features of the work is the care and liberal manner with which it is illustrated, this bespeaking the conscientious teacher. The author does not go beyond the confines which he has set for himself in the title, and hence, while there is a great deal to be said about fractures that does not appear in this book, it constitutes a most excellent text-book upon the subject of which it claims to treat.

ECZEMA; with an Analysis of Eight Thousand Cases of the Disease. By L. Duncan Bulkley, A.M., M.D. Third Edition of "Eczema and Its Management." Entirely rewritten. New York and London, G. P. Putnam's Sons, 1901. XII., 368 pp. 12mo. Price: Cloth, \$1.25 *net*. (*Student's Manual Series on Diseases of the Skin.*)

This little volume is a well written, and as to statistics, a carefully compiled work, which it may be here said, agrees in pretty nearly all respects with the conclusions arrived at independently by the reviewer, who has been for many years teaching and arguing on the same general line, as have many other dermatologists, especially those of the United States.

This must be said of the author, however, that no one has so strenuously and publicly, by book and thesis, given forth his opinion that constitutional, and not local conditions alone, seem to determine in many cases the production of eczema, and their perpetuation; and that those diatetic causes, such as the rheumatic, or improper diet causing reflexes from the mucous membranes, have a directly disposing, and probably often a directly causative, effect.

There seems to be at present a weakening all along the line of dermatologists formerly opposed to this belief or theory, both in this and other countries; and a general recognition of these asserted opinions, at least in relatively great degree, in all the later and standard works on this subject.

The entire volume can be read with advantage by those interested, but

if it were required that one should point out that best to be studied by the general practitioner, it would be in our opinion that contained between pages 90-109—the chapter relating to the differential diagnosis between eczemas and those diseases of the skin simulating it. S. SHERWELL.

THE PAPYROS EBERS.

The famous "Papyrus Ebers," which was written during the reign of the Egyptian king Bicheres, 3,500 years ago, was discovered by the celebrated archeologist, George Ebers, in 1872, when an Arab brought him a metallic case containing a papyrus roll enveloped in mummy cloths, which he claimed had been discovered between the bones of a mummy in a tomb of the Theban Necropolis. A complete description of the papyrus and its history is included in the reproduction and is certainly extremely interesting to physicians and antiquarians generally. A copy will be forwarded by The Palisade Mfg. Co., Yonkers, N. Y., to any physician who desires to receive one.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By various writers. A new edition, completely revised and rewritten. Edited by Albert H. Buck, M.D. Vol. 2. New York, W. Wood & Co., 1901. v, 838 pp., 91, 12 pl. 4to.

This valuable volume continues the exhaustive review inaugurated by its predecessor. The work, when completed, bids fair to outstrip others of similar character. All branches of medicine are to receive attention. In this particular issue the article on the brain is noteworthy—the circulation of which is described in a very scholarly and carefully illustrated chapter by our president, Dr. William Browning. To appreciate thoroughly one must possess and study it and have it at hand to refer to. As a work of reference it will answer questions which no other medical work that we are acquainted with undertakes.

TRANSACTIONS OF THE ASSOCIATED PHYSICIANS OF LONG ISLAND. January, 1900, to June, 1901. Vol. 2. (Brooklyn, 1901.) 168 pp., 4 pl. 8vo.

This volume merits comment from cover to cover. We would call attention first to the well executed seal. Appropriate in design and well reproduced in gold it is placed on the outside cover, only this we think a mistake, for when the pages fall into the binders' hands, as they surely will in many instances, cover and seal will be lost in the waste-basket. The title page is artistically decorated. The grape-vine, laden with mellow fruit, forms a well chosen wreath for the bountiful offering the book contains.

The announcement, in the prefatory note, that "the editors congratulate themselves on having presented one of the most artistic volumes of any society or association of similar character" well illustrates the widespread influence of the *modern* newspaper. All will agree with the next statement: "It speaks for itself." That is what it was intended for, aye, more, for the association, and it does it well.

The illustrations are well done and of value, and the work well arranged, and best of all, carefully indexed.

The reports of three meetings are contained in this issue. The papers deal with practical questions and are of high order. It is very apparent that the reports of discussions were not submitted to authors for review. Their value is thus decreased.

The book closes with a historical sketch, a record of entertainments, an amended draught of the constitution and roster of members. Several omissions may be noted; the address delivered by President Winfield at the Northport meeting, the discussion of Dr. Niesley's paper, the engraving of the late John Francis Bruns.

Editing, embellishment and all the detail of this volume are the product of the society's talent. The treasurer's report shows a comfortable balance and the roster a rapidly increasing membership. They did well who founded the association. We congratulate them and the editors of this volume.

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

EDITOR IN CHIEF:

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BUSINESS MANAGER:

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DAVID MYERLE, M.D.

CHARLES D. NAPIER, M.D.

VOL. XV, No. 10. }
WHOLE No. 166. }

BROOKLYN, N. Y., OCTOBER, 1901.

} Single copies 25 cents
} \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

LA GRIPPE IN CHILDREN.

BY W. L. CHAPMAN, M.D.

Read before the Section on Pediatrics of the Medical Society of the County of Kings, February 8, 1901.

(CONCLUDED FROM SEPTEMBER ISSUE.)

Toxic Cases.—In the class of cases accompanied by severe toxemia, it may be necessary to distinguish grippe from acute chemical poisoning, pernicious malaria and auto-infection. Some writers have stated that it may be mistaken for sunstroke. As a rule sunstrokes are not common at the seasons of the year when grippe occurs.

Pernicious malaria is extremely rare in these latitudes at any time, and especially so during the winter months.

Chemical poisoning might be intentional or accidental. It might occur from an attempt to murder the child or from an overdose of soothing syrup, or the poison might accidentally become

mixed with the food. Any of these instances, occurring at a time when gripe was prevalent, might easily lead us into error.

Our first guide should be the temperature. In acute poisoning the temperature would be normal or sub-normal, while in gripe it would usually be high. True, certain cases of gripe with severe toxemia are accompanied by sub-normal temperature, but this is usually during convalescence or after the attack has lasted long enough to exhaust the vital functions. At the onset the temperature is usually high. I doubt if sub-normal temperature ever occurs in gripe during the first forty-eight hours of the attack.

The respirations might also be a guide. If the poison were administered accidentally, such as an overdose of soothing syrup, it would likely be a narcotic. In that case the respirations would be slow and stertorous, while in gripe they are rapid and superficial.

Auto-infection may closely resemble severe toxemic gripe, and the differential diagnosis is very difficult. Both are toxemias, and the symptoms are almost identical. The diagnosis may never be entirely cleared up, but a fair conclusion may be arrived at after careful inquiry.

The first thing to be ascertained is whether it is a breast-fed or bottle-fed baby. Cases of severe auto-infection in a breast-fed baby are rare. If it is bottle fed, the nature of the food should be ascertained. Next, we may inquire into the manner in which the bottles and nipples are kept. Whether they are sterilized daily or not. Another thing we may observe without inquiry is the nature of the surroundings. Whether the parents are thrifty or slovenly, if the place is neat or dirty, and whether the parents attend to the child themselves or trust it to ignorant nurse girls.

After making the above inquiries, if we find that the child is bottle fed, the food unsterilized or unpasteurized, the bottles and nipples neglected, the parents and surroundings slovenly or uncleanly, or the child entrusted to nurse girls; then suspicions of auto-infection should be aroused.

The condition of the bowels should be taken into consideration. Many cases of auto-infection are preceded by a period of constipation. If the child has diarrhea, we should carefully examine the stools. If it is constipated we may give an enema and procure a stool. If the stools are dark brown or greenish in color, with foul odor, showing signs of intestinal putrefaction, the case points toward auto-infection.

Explosive vomiting often precedes the collapse in auto-infection. In gripe this is rare.

After the points mentioned have been noted and no other gripe symptoms are present, the case may reasonably be supposed to be one of auto-infection.

In many cases the diagnosis between gripe and auto-infection must be mainly a matter of conjecture.

Treatment.—No orthodox treatment can be laid down. The different varieties and complications must be met as indications arise and treated symptomatically.

The prophylactic treatment is the same as in any other contagious or infectious disease. In general, the treatment should be supporting from the start, with careful attention to nutrition and the performance of the digestive functions.

The temperature, if high, should be reduced by sponging or the cold pack. But when hydrotherapy is employed, the reduction of temperature should be extremely gradual. Sudden changes are not well borne. Of the internal antipyretics I still cling to liq. ammon. acetatis and spts. etheris nitrosi.

The coal tar preparations need be mentioned only to be condemned; also aconite and veratrum viride. The low arterial tension is a contra-indication to their use. The coal tar preparations are not simply temporary depressants, but cell destroyers, and the fever and toxin produce sufficient cell disintegration without adding fuel to the fire. (Van Cott, BROOKLYN MEDICAL JOURNAL, May, 1899.)

It is true that they reduce temperature and relieve pain, but their benefits are costly to the system. They reduce temperature by lowering the oxidizing powers of the tissue, and they relieve pain by producing cell degeneration in the sensory nerves. In cases treated with the coal tar preparations the prostration is more marked and convalescence greatly retarded. I believe that their use should be dropped from the therapeutics of infants.

The prostration must be met by stimulants, such as whisky, strychnia and digitalis. Quinin, camphor, caffein and Russian musk are recommended.

The musculo-articular tenderness seems to be relieved best by external heat, as a warm mustard bath, or sponging with warm witch hazel. Internal anodynes should be withheld if possible.

The child should be well clothed and kept in bed if possible. The temperature of the room should be even and the child guarded against drafts and sudden changes.

Special Symptoms.—For the coryza with frontal headache, warm poultices of poppy-heads or camomile flowers placed over the nose and frontal sinuses seem to give great relief. If the air passages are markedly congested, steaming with tr. benzoin co., oil of eucalyptus, menthol or thymol is useful. If bronchitis is extensive it is best treated by counter-irritation.

Internal medication seems to do little else than derange the stomach.

For the nervous symptoms, nothing seems more efficient than external heat. If convulsions occur, the hot mustard bath is usually effective. This may be followed by chloral hydrate, ergot, cannabis indica or cinicifuga. The bromides are too depressing.

In the cases affecting the digestive system, the most important point in the treatment is a careful regulation of the diet. Egg albumin and beef extracts do not seem to be well borne. Barley water and whey or mixture of both seem to answer best in young infants. In children over six months of age, Dr. Bartley's modification of cows' milk, with the milk almost entirely siphoned off, is useful. As the acute symptoms subside it can be strengthened gradually by siphoning off less milk day by day, until the child is able to retain its usual diet. Cold water is craved by most patients and should be freely given.

If the vomiting be persistent, cocain, creosote and sherry wine in the following proportions are often useful; cocain muriate gr. $\frac{1}{60}$, creosote ℥ $\frac{1}{10}$, sherry wine gtt. xx and water enough to make a teaspoonful. This is administered every two hours until vomiting ceases. Calomel in $\frac{1}{10}$ grain doses every hour for the first twelve hours is often useful.

If there is much abdominal tenderness warm applications are soothing. The old-fashioned spice poultice is often grateful.

In the cases of severe toxemia, if the collapse is pronounced, prompt stimulation with the application of external heat is indicated. Irrigation of the colon with normal saline solution at a temperature of 70° is beneficial even if the diagnosis is in doubt as to whether we are dealing with grippe or auto-infection. In either case it will reduce the temperature and if it be auto-infection, it will remove some of the offending matter. This may be followed by calomel in full doses; from one to three grains to a child of one year of age.

During convalescence, the hypophosphites or phosphoric acid and strychnia are beneficial.

In conclusion I might state that I believe the best treatment

for "Grippe in Infants" to be: Use as little medication as possible and trust mainly to careful nursing.

19 Lafayette Ave.

DISCUSSION.

Dr. B. C. Collins: Middle ear inflammations have been unusually common and severe, and the infection has shown a tendency to involve the deeper structures, during the present epidemic of la grippe. The Brooklyn Eye and Ear Hospital is at present crowded with ear cases and many mastoid abscesses due to la grippe infection.

In children much of the restlessness that Dr. Chapman has noticed is undoubtedly due to inflammation of the ear. Inspection will not always show a congested drum. Very often the dermal layer has separated, and a very careful examination is necessary to find the trouble. If this layer is removed, very often a bulging drum is seen and early incision gives prompt relief. The nose becomes involved very often before the ears and a thick mucopurulent discharge is very often seen, with some frontal headache. I wish to condemn the use of the nasal douche in these cases. It is very true that it will cleanse the nose better than a spray, but too much fluid is forced into the nose, and ear complications are much more common. This is not only my experience, but that of many others. Examination of the discharges from the nose and ear rarely discloses the grippe germ spoken of here to-night. In the ear the infection is a mixed one. Nearly all the pus producing germs may be found, often two or more varieties on the same slide.

Dr. H. A. Fairbairn: It is so important to bear in mind that this disease is the result of infection. The various local changes will then be accounted for, as well as the grave constitutional disturbance due to the action of the toxin of the bacillus. Mucous membranes are especially involved, and degenerative changes in nervous system, vascular and glandular, are frequent. In the inception of the disease carbonate of guaiacol and creosote is, in my experience, almost a specific. It must be used in heroic doses. Saline infusion is of benefit in the intestinal troubles. It is necessary to keep the patient under observation for some time after the acute attack as sequelæ are the rule and at times of grave nature.

Dr. Benjamin Edson: Two years ago I had an opportunity of observing a considerable number of cases of grippe in children

in an institution where we had experienced nurses who made record of the cases.

The children were attacked one after another in such order that it was apparent that the disease spread by contagion, and not as epidemic. The disease usually began with drowsiness, and in many cases marked stupor lasting for a day or two. Nausea and vomiting were common. Very few had the headache, backache and muscular pain so commonly present in adults.

In some experimental cases, treated with a placebo, the fever increased day by day as in typhoid fever, until the fourth day, when the temperature suddenly dropped to normal or below, some cases to 96° , 95° and even 94° with symptoms of collapse, to be followed within thirty-six hours by a sudden rise of fever higher than on any of the preceding days.

One pretty constant symptom was severe pain on the left side in the neighborhood of the spleen, suggestive of beginning pleurisy or pneumonia. After two or three days this subsided. I am of the opinion that it was due to intense congestion of the spleen.

We hear much said about *grip weather*. The prevailing idea is that warm, damp weather promotes the grippe. After some attention to this phase of the disease, it seems to me that the disease is more active in severe cold weather. The history of our recent epidemics and of those recorded in past centuries shows that the disease prevails chiefly in the winter season, and that even clear, cold weather fails to check it.

As regards the drug treatment of the disease, that by quinine and laxatives, as castor oil, is the most irrational and senseless. To give quinine in doses to cause profuse perspiration and a cathartic to compel the patient to seek the toilet while reeking with quinine sweat, is both absurd and dangerous, and pretty sure to provoke or aggravate the influenza symptoms. I do not give quinine except when malarial symptoms are manifest.

Notwithstanding all that is said in condemnation of giving coal tar derivatives in this disease, I plead guilty of using them regularly and freely in the first stage of the grippe. In no other way can I give the patient such prompt relief from the excruciating pains. When this is accomplished I stop the coal tar preparation. With it I give a tablet containing digitalis, strychnine, strophanthus and nitroglycerine. This is continued for some days p. r. n. To this are added a general stimulating tonic and supporting treatment.

Above and beyond all, *rest in bed*.

Dr. Bartley spoke of the early symptoms, and said he had often noticed the very general occurrence of drowsiness, lasting several days in some cases. He had not observed the sudden fall in temperature mentioned by Dr. Edson. He had noticed cyanosis in some cases.

He reported a fatal case of *methemoglobinemia* produced by grippé. The case occurred at the Sheltering Arms Nursery during an epidemic, the mother suffering with the disease at the time. The child was two years of age, and fairly well nourished. It suffered with mild symptoms of coryza for about twenty-four hours, when it became cyanotic, and suffered with distressing dyspnoea. The pulse became rapid and weak, and the respiratory sounds, as well as the percussion note, were normal over both lungs. The skin was deeply cyanotic over the entire body. The urine was scanty and contained an abundance of methemoglobin, and was dark red in color, darker than venous blood. The child died about twelve hours after the appearance of the cyanosis.

The autopsy showed no lesion except that the lungs, kidneys, liver, spleen and heart were of the same dark color. The blood was everywhere liquid, and very dark red in color. Microscopical examination of the blood and sections of the above organs showed nothing abnormal except the decomposed blood. The case was probably one of profound toxemia, with rapid destruction of the red blood cells, similar to that occasionally seen in severe malarías, yellow fever, typhus fever, scarlatina and septicæmia.

BLISTERS IN CERTAIN ABDOMINAL DISEASES.

BY C. F. MCGUIRE, M.D.

Read before the Medical Society of the County of Kings.

A distinguished member of the College of Physicians of Philadelphia, states in a recent work of which he is the author that he has abandoned as a rule all counter irritation and has relegated it together with the moxa and actual cautery to the realm of the barbarous ages, where they belong and always did belong. This statement it is unnecessary for me to say, is too radical to be acceptable to the whole profession, but, nevertheless, it is a fact that blistering, which at one time was much in vogue, has now

fallen into great disrepute. My object in this paper is not to explain the reason of this reaction, but to call your attention to a few modes of applying blisters that I have found advantageous and expedient. An article written by Dr. Harkin of Belfast, Ireland, first directed my attention to this matter. In his article Dr. Harkin claims great success in the treatment of cholera morbus and cholera infantum by employing blisters over the pneumogastric. His method is to apply the liquor epispasticus of the British pharmacopœia over the seat of the pneumogastric in the region of the neck. That portion of the nerve is selected which lies behind the ear and the fluid is applied from this point as far as the angle of the jaw. Dr. Harkin bases his theory on the dictum of Claude Bernard that the stage of collapse of cholera is due to irritation of the sympathetic nervous system, and as the pneumogastric is the antagonist and controller of the sympathetic nerve of the abdomen, its aid can be invoked with certainty of success. That it is successful has been my uniform experience, and I would especially commend it in allaying the vomiting which forms so distressing a symptom of these diseases. It may happen that certain cases will not improve after the application of one blister, and in such an event it is recommended to apply another blister to the opposite side of the neck. Then again you may have other cases in which the diarrhea continues longer than is desirable, and in these cases a small blister over the region of the liver will be found beneficial. It is unnecessary for me to add that this counter irritation does not in any way interfere with whatever medicinal treatment you may wish to institute for the completion of the cure.

In conclusion, I will mention another condition in which you will find blisters to be of the greatest utility. I refer to certain cases of congestion of the liver that are accompanied with a heavily coated tongue. Now these cases sometimes fail to respond to the usual action of cathartics and it is especially in such cases that you will find a blister over the liver to be of the greatest assistance.

TREATMENT (ABORTIVE) OF FOLLICULAR TONSILLITIS AND PERITONSILLITIS BY SYRINGING.

BY JOSEPH MEYER, M.D.

Read before the Medical Society of the County of Kings.

I believe these affections to be due to the infection of toxins or bacteria, the latter probably made active by what is commonly called a cold, setting the bacteria into action, upon a field which they before may have occupied, but, through said cold the field has become a field of less resistance and more suitable soil for bactericidal activity, and absorption of toxins. The tonsils may have as claimed by some antibactericidal properties but because of their peculiar confirmation, they also have in a high degree the capacity for storing bacteria and putrefactive matter, either of which may become active, through a cold or of their own accord at any time that conditions are favorable.

That these affections are more frequent in the cold weather than in the warm weather is a point simply showing that a so-called cold causing an internal congestion, an external contraction of vessels and in the first 12-24 hours an increased absorptive power are conditions favorable to bactericidal action and absorption of toxins. The increased power of absorption noticed during the first 24 hours or so of a cold is evidenced by the increased thirst and undiminished appetite, often the meal taken just before the initial chill, is eaten with the same relish, and seems to digest faster than ordinarily, this being noticed especially by dyspeptics. I have often noticed that digestion is not disturbed during the first 12-24 hours of a cold or febrile condition.

The increased internal flow of blood stimulates the lymphatics into increased activity and increased powers of absorption. The chill when present is not the beginning of the cold, but the sensations often felt twelve to twenty-four before of uneasiness, dry skin, hot flashes, a local chilly sensation, creepy feelings, increased sensitiveness of the skin all over the body to changes of tempera-

ture, are usually felt before. The chill itself is merely the acme of the onset and the beginning of the localization of the disease.

These being the facts the abortive treatment of follicular tonsillitis and peritonsillitis or quinsy, which latter is merely an aggravated form of follicular tonsillitis affecting chiefly the lacunæ superiores, the largest, most wide-mouthed also the deepest and nearest to the peritonsillar cellular tissue, permitting more favorable conditions for infection and putrefaction, consists of two things, *viz.*:

1. Treatment of the initial stage.
2. Cleansing the lacunæ by syringing them with bichloride solution 1-1,000.

If the patient is seen early enough and the preceding symptom of a cold are present; a uniform temperature, also rest in bed, with hot beef tea or milk as a drink, getting up a good sweat, followed by a hot towel rub-down will often abort or ameliorate an attack of follicular tonsillitis or quinsy by bringing about less favorable condition for bacterial action.

Formerly I curetted these cases removing all the cheesy material and débris filling the lacunæ, then drying them with a cotton probe; now I use a simple $\frac{1}{4}$ or $\frac{1}{2}$ ounce syringe of the laryngeal type for syringing the lacunæ. In seven cases well suited to test the merits of this form of treatment not only to abort but also as a means of treatment after the disease has lasted longer than usual; the results were very satisfactory. The anatomical arrangement of these lacunæ is such that they are easily cleansed, and to my surprise very often a number of them communicate with each other or at least with one another. If the mouths of the lacuna are narrow lift up one of the lips with a cotton carrier or blunt curette, stretch slightly or open with small knife, and then syringe can be introduced with ease. Introduce the nozzle of the syringe deep into the lacunæ and inject, even if little force is necessary, each lacuna separately if necessary, often you will be surprised to see a plug come out of a neighboring lacuna or the fluid injected from a number of lacunæ. The relief often is immediate, especially where a filled lacuna existed for some time and the cheesy matter acted as foreign body.

In cases where most of the inflammatory trouble has passed over but one or two lacunæ are filled with cheesy matter leaving still a sore sensation, some pain swallowing with some swelling of the tonsil this method is admirably adapted. Such cases are quite frequent although not described in the books.

CASE I.—Adam Eppig, age 57 years; had a painful sore throat for twenty-one days, could hardly open mouth or talk; examination showed both tonsils swollen, the lacunæ, especially the upper lacunæ, filled with cheesy matter, throat looked patchy with small flakes of muco-pus scattered over pharynx and soft palate filled with nests of various forms of bacteria, principally streptococci. Treatment: Right tonsil was thoroughly syringed once; left tonsil, twice; a good deal of cheesy matter was discharged. Third day almost entire trouble was gone; there was no distinct discharge of pus or a breaking of an abscess at any time.

CASE II.—Gattke, age 22 years; a case of follicular tonsillitis of twenty-four hours' duration in left tonsil could count about seven spots or filled lacunæ. Treatment: Syringed thoroughly once, at first injection; four lacunæ were emptied at once, the other lacunæ had to be washed out separately. This was done in the presence of Dr. Hettesheimer.

CASE III.—M. Hettesheimer, age 20 years, had sore throat for several weeks, had taken the usual iron mixture and gargle. Treatment: Syringing. She had five of six filled lacunæ some only made visible by opening the mouths of the lacunæ with a very fine, thin bistoury, then washing out with the bichloride solution 1-1000.

CASE IV.—M. Gleddenning, physician, age 27 years, had quinsy on various occasions lasting ten to twelve days. This the third day of an attack of quinsy. Examination: Right tonsil much swelled pushing anterior pillar forward and presenting between the two pillars a large open superior lacuna filled with putrefactive matter. Treatment: Syringed twice on following days, O. K. on 5th day.

CASE V.—D. McCaffry, age 37 years; formerly had frequent attacks of quinsy, last attack, last year, lasting ten days. This attack, third day. Examination: Left tonsil much swelled and superior lacuna filled with a cheesy detritus. Treatment: One thorough syringing and no further treatment.

CASE VI.—Miss Cussick; age 12 years, frequent attacks of tonsillitis, this last attack lasted over fourteen days, referred to me by Dr. Kuhn. Examination: Both tonsils very large and many lacunæ filled with cheesy matter but mostly the large superior lacuna of the left tonsil. Treatment: Syringed three times thoroughly left tonsil, emptied cheesy matter and pus through the superior lacunæ. Abscess cavity was entered deeply with the syringe without cutting.

CASE VII.—Mr. W., age 40 years, who was seen by Drs.

Fuhs, Bullwinkle and myself. Patient complained for fourteen days, but little of his throat, but much of his general bad feelings, of weakness, fever, malaise, etc. Upon examination of his throat, left tonsil filled with cheesy matter detritus, and a flaky condition of the pharynx, soft palate just the same as case No. I.

It was a question of diagnosis between typhoid fever and a streptococcus form of follicular tonsillitis, latter diagnosis proved correct after opening lacunæ with knife and curetting and washing out with an antiseptic gargle; patient got well. I did not use syringing at this time, but curetting, which I have used for a number of years.

Cases which I have seen but once, or could not be followed up, I have not reported. I should like to add that when these patients get well they are advised to have their tonsils removed, or what I prefer to do except where the tonsils are very large and soft is, to melt away the tonsil by flat cautery burning and cicatrizing lacunæ with same method. Very large and hard tonsils of adults can be melted away without danger, pain, or much trouble, except the time, four to six sittings.

Since writing up these cases I have had three more cases, one at St. Catharine's Hospital, supposed to be a case of pharyngeal abscess. Cheesy matter could only be seen on opening the mouths of the lacunæ. Curetting the lacunæ gave immediate relief. The other two cases were just like No. III.

Remarks: The syringing must be thoroughly done with a proper syringe and quite warm bichloride solution 1-1000. It is not painful even in quinsy. It is better than curetting, the latter causing a broken surface and easy bleeding of the lacunæ. In all above cases no medicine was given beyond, perhaps, a cathartic and an antiseptic gargle, usually boiled or hot water.

Streptococcic forms of tonsillitis and pharyngitis often make diagnosis difficult, the throat in these cases not being particularly painful. I had two other cases similar to No. VIII., simulating phthisis, which I intend to write up some other time. The flaky deposits spoken of in No. I. and VIII. sometimes extend from the nose to the larynx.

228 Vernon Ave.

THE DIGESTIBILITY OF ARTIFICIAL EMULSIONS.

BY WALTER BRYAN, M.D.

Read before the Section in Pharmacology, Therapeutics and Materia Medica of the Medical Society of the County of Kings.

Our ideas of the digestive process which neutral fats undergo have been considerably modified within the last few years. These factors enter into the process:

1. The physical characters of the ingested fat, particularly its melting point,
2. The fat-splitting enzyme of the pancreatic juice, steapsin. (Steapsin is the only fat-splitting enzyme in the body. Like all enzymes, it acts only in the presence of water, which is thus essential to digestion of fats, as well as of proteids, and of carbohydrates.)
3. The alkaline salts of the digestive juices poured into the intestine,
4. The peristaltic movements of the intestines,
5. The presence of water.

When the fat ingested is met in the small intestine by the pancreatic juice, steapsin at once splits up some of the fat into fatty acids and glycerin. The fatty acids combine with the sodium carbonate of the bile, the pancreatic juice and the intestinal juice to form soaps and peristalsis acting mechanically upon these contents of the intestine brings the whole mixture into the condition of an emulsion; an emulsion, however, which is made by means of soap and in this respect differing in a marked degree from many of the artificial emulsions. We have at first a formation of fatty acid and glycerin, then a formation of soap, next an emulsion caused by peristalsis, and in which soap and steapsin dissolved in the digestive juices form the emulsifying medium. The formation of this emulsion increases the area of contact of the steapsin with the unconverted fat, thus facilitating splitting up the latter into fatty acids and glycerin; the best authorities consider that *all* of the fat which is absorbed is so split up.

The fatty acids, glycerin and soap are soluble in the digestive fluids of the small intestine, and are now ready for absorption. Formerly this absorption was thought to occur by purely physical

processes, osmosis and diffusion, but the later observers have reverted to the conclusion that the laws of physics and chemistry will not account for the absorption of fats and that there enters into the problem the vital activity of the cells of the intestinal mucous membrane, that each individual cell picking out for itself particles of digested fat-materials, recombines them into fat and passes the globules of fat thus formed into the lacteals.

The old theory that the utility of the preliminary emulsion of an oil is simply to break it up into a number of globules, small enough to pass readily through the spaces between the cells of the intestinal mucous membrane or through the spaces in the cell walls into the cells, is not in strict accordance with a number of results secured by different original workers. Some of these results have been cited by Hall in his "Text Book of Physiology" and may be tabulated as follows:

"1. Ingested soluble soaps are absorbed. (Radzejewski),
"2. Soap and glycerin are absorbed and synthesized after absorption, and before the lacteals are reached, into neutral fat which circulates through the lacteals as a typical chyle emulsion. *The epithelial cells when treated with osmic acid show abundant oil globules.* (Perevoznikoff).

"3. Ingestion of free fatty acid and glycerin is followed by a synthesis within the epithelium and the appearance of fat globules there.

"4. Ingestion of free fatty acid alone was followed by the appearance of fat globules in the epithelial cells. In this case the cells must have furnished from some source the glycerin constituent of the fat formed.

"5. Steapsin acts rapidly upon the fat and in the usual time consumed in intestinal digestion would be able to change the usual amount of fatty food into fatty acid and glycerin. (Rachford)."

In conclusion we find this statement in Hall:

"Absorption of fat in globules is wholly inexplicable; absorption of fat in solution, as soaps and fatty acids, is only partly inexplicable."

- The real digestion of fats *is not the emulsification*, but the splitting up of the fat into glycerin and fatty acid. If this is borne out by further research it would seem that an undue importance is ascribed to emulsification of fat by artificial methods before ingestion. An artificially emulsified fat can in no sense be considered a pre-digested fat, in fact the question arises whether we do not

actually interfere with the natural digestion of fat by emulsifying prior to ingestion.

If it were desired to bring a fat into contact with an enzyme, like steapsin, and water and sodium carbonate in a test tube, the prior addition of an emulsifying medium of any kind whatsoever would probably hinder the mingling of the two substances and thus tend to retard the action of the enzyme upon the fat.

The administration of fats in the form of an emulsion presents several disadvantages, and in this regard the following points may be considered:

1. In administering a small quantity of the oil we are forced to give a comparatively large quantity of the emulsifying medium, gum, sugar, albumen, or other material, which may not be at all desirable.

2. Fats tend to become rancid and some means must be adopted to prevent this rancidity. In administering a dose of an emulsion, then we also give a dose of the material used in the emulsion as a preservative for the oil.

3. The emulsions in the intestine are produced by soaps, if we administer an emulsion made with gum, or albumen we can hardly assume that we are approximating normal conditions

4. If we look to the lower animals for a solution of the question of the utility of emulsions as foods, we find:

- a. That the carnivora are capable of readily digesting fats although they are devoured in large masses,

- b. That only the mammals utilize a fatty food which is emulsified before ingestion, and they only during the early years of infancy.

5. If the formation of an emulsion during digestion of fats is purely a mechanical process, incidental to and facilitating the splitting up of fats into glycerol and fatty acids (in the presence of sodium carbonate) and comparable to the shaking of a test-tube to bring the particles within it into better contact with a reagent, it is possible that we do positive harm by administering artificial emulsions, since we do away with this mechanical movement of the masses of fat *at the moment of meeting the steapsin*, and thus prevent the formation of a physiological intra-intestinal emulsion, the emulsifying medium of which is soap, *holding steapsin in solution*. Milk is classically called the "ideal food." It is sometimes spoken of as a natural emulsion, but it is probable that the fat globules of milk may serve to maintain the dissolved albumins

in a condition mechanically favoring their coagulation and digestion by the gastric juice.

Referring to Hall we find the following statement:

"In the stomach it (milk) is first curdled by the action of the enzyme rennin. The curdling of the milk consists in the coagulation of the caseinogen; after coagulation it is called casein. The casein and the lact-albumin undergo the typical proteid digestion. The proteid pellicles which surround the oil-globules are digested off and the oil escapes." If the emulsified state in which fat exists in milk is an essential preliminary to its digestion, why does this emulsion disappear after the milk is acted upon by the gastric juice?

If in natural digestion the fat globules in milk become larger in the gastric juice, the emulsified condition being destroyed and the fats being sent to meet the bile and pancreatic juice in comparatively large globules, it would appear that in administering emulsions in which the oil globules are extremely minute in size we are relying upon a mechanical subdivision of fats made at the wrong time in the wrong place, and with the improper emulsifying medium.

Among the commercial emulsions or, *artificial emulsions* there is one which is of particular interest because of the extraordinary claim made for it, as an effective means of administering fats in a readily assimilable form. I shall call it emulsion No. 1 to distinguish it from a second emulsion with which I have made a few simple comparative tests and which I shall call emulsion No. 2.

The first thing noticed in the putting up of this emulsion is the label; let me call your attention to the fact that it so completely hides the contents of the bottle that inspection of the condition of the emulsion is completely prevented.

Emulsion No. 1 is called a "Pancreatic Emulsion." The title "Pancreatic Emulsion" seems somewhat paradoxical. If a mass of animal fats were mixed with fresh pancreatic juice, the steapsin would unquestionably convert part of the fats into glycerin and fatty acids so that such an emulsion would contain, glycerin, fatty acids, soaps, free fats, and pancreatic juice. But fresh pancreatic juice in quantity much greater than a few cubic centimeters cannot be obtained. The fresh pancreas cannot be used since it does not contain the enzymes, which are obtained by allowing the gland to stand for some hours and then extracting the enzymes formed during this period with glycerin in which liquid they are readily soluble.

The steapsin, the fat splitting enzyme is an extremely unstable substance, so much so that it has as yet not been obtained in a pure state. It loses its power of splitting up fats in a very short time; the pancreatin of the Pharmacopœia is without action upon fats.

If the powdered gland be used we are practically giving with our dose of the fats a quantity of dried pancreas. All of these substances, the pancreatic juice, the dried pancreas, the glycerin have a high specific gravity, whereas the specific gravity of the so-called pancreatic emulsion is only about 1005, that of emulsion No. 2 being about 1030; the reaction of the former being alkaline, that of the latter acid.

On the label of emulsion No. 1 is a notice calling attention to the minute size of the oil globules. It would appear from this that the promoters of this emulsion are still adherents of the *old theory* that the fats are mainly absorbed in the form of an emulsion, in which the size of the globules is a material factor; I have cited reasons for believing that the main mass of the fat is absorbed as fatty acid and glycerin and soap, and that little or none is absorbed in the emulsified form. However small the size of the oil globules may be outside the body, we must remember that this emulsion and all other emulsions given by the mouth must pass through the acid gastric juice. The pancreatic emulsion is alkaline, it must before entering the intestine meet the acid gastric juice. Let us note then the effect of HCl upon both of these emulsions.

Upon adding HCl to emulsion No. 1, a copious flocculent precipitate is observed, made up of large amorphous masses not unlike an albuminous precipitate, the size of these masses forming a striking contrast to the minuteness of the globules in the emulsion before acidulating. In No. 2, no precipitate forms on addition of HCl.

Taking now a platinum capsule and incinerating a small quantity of the "pancreatic emulsion" we note, after the volatile oil used as a preservative is driven off, that it gives off the odor of burnt milk, continuing the incinerating process we find a fatty liquid separating which on testing with litmus is found to have a neutral reaction. Going on still further we get a charred mass which gives off the odor of burnt horn; and, finally, continuing the process to determine if phosphates are present in the ash, we find that upon dissolving the remaining ash with nitric acid adding ammonium molybdate and boiling we get a copious yellow precipitate, showing that phosphates are present in fair quantity.

The smell of burnt milk, the existence of phosphates, the odor of burnt horn, showing the presence of albumen are points of resemblance between this emulsion and milk.

The chemical analysis also indicates the presence of milk-sugar.

Bearing in mind the chemistry of fat digestion, it would seem not impossible to administer by the mouth substances like fatty acids, and sodium carbonate which favor the formation of a physiological soap emulsion, provided such a result is desired; this would certainly be preferable to prescribing proprietary articles over the manufacture of which, neither physician nor public has the slightest control.

The fact that a business firm may conclude for business reasons to lower the quality of its output at any time, constitutes to my mind one of the most serious drawbacks to the prescribing not only of commercial emulsions, but of proprietary articles generally, since it puts physician, pharmacist, and public entirely at the mercy of the manufacturer.

I am indebted to Cornell University, Medical Department, for the use of apparatus.

173 Amity Street, March, 1901.

DISCUSSION.

J. C. Cardwell: Of special interest to me were Dr. Bryan's remarks concerning fat absorption. For during the past few years our ideas concerning this matter have been undergoing great changes; considering the importance of the subject and especially the widespread acceptance of the emulsion theory it may be worth while to recall briefly the chief points which have brought about our change of hypothesis. The theory that fats are absorbed from the intestine in the form of emulsified neutral fats grew out of the work of Eberle, Bernard Brücke, Kühne and others. The chief evidence on which it rests may be summarized as follows:

1. Pancreatic juice acting upon fats, liquid at the body temperature, quickly emulsifies them.
2. This emulsifying action of pancreatic juice is especially evident if bile is also present.
3. In the emulsion thus formed the globules of fat are very small.
4. Emulsions of fat are sometimes found in the small intestine.
5. During fat absorption, globules, evidently of fat, are visible in the villi-epithelial cells, and finally,
6. The contents of the thoracic duct during fat absorption, consist largely of emulsified fat, together with some soap.

From these observations taken together

it was concluded that ingested fat is emulsified in the intestine by the action of pancreatic juice and bile, and in this emulsified state passes through the epithelial cells and other structures of the villi into the central lacteals. But is this conclusion warranted? Let us examine the evidence. That pancreatic juice in the presence of bile does quickly emulsify fats is true, but this statement does not summarize the whole truth. Pancreatic juice splits neutral fats into their constituent fatty acids and glycerin and from our knowledge of the rapidity of its action outside of the body we are almost warranted in assuming that within the intestine, nearly, if not quite all the neutral fat of an ordinary meal is thus split during the time of normal digestion. Rachford found that fresh pancreatic juice from the living rabbit split off from neutral olive oil 5.5 per cent. fatty acid within two minutes. When Bernard first observed the emulsionizing action of pancreatic juice on fats, and declared the existence of "*ferment emulsif*" therein, but little was known of the real nature of permanent emulsions and the conditions essential for their formation. It has since been shown that with an alkaline solution of given percentage a perfectly neutral oil will not form a lasting emulsion, however, long and vigorously the two be shaken together. But the addition to such a mixture of a certain percentage of free fatty acids results in the formation of an emulsion without shaking—or has been said, spontaneously—and such spontaneous emulsions are quite permanent. It is, therefore, now generally admitted that pancreatic juice acting upon neutral fats in the presence of an alkali emulsifies them by splitting off sufficient fatty acid for the purpose—and hence, we no longer suppose the presence in pancreatic juice of a "*ferment emulsif*." Fat in the form of an emulsion is *sometimes* found in the small intestine, but often it is not. And quite frequently a considerable percentage of free fatty acid is found. The presence of fat globules in the villi cells and of emulsified fat in the lacteals does not prove that this fat was absorbed in the condition in which it is there found. For we know that albumoses and peptones are changed into native proteids during their passage through the intestinal mucosa; and why cannot fatty acids or soaps be likewise changed into neutral fats? There is considerable evidence that such transformation actually does occur. If fatty acids alone be fed they are absorbed from the intestine, and after their absorption neutral fat in emulsified form is found in the thoracic duct. Not only this, but found in the villi cells of frogs after injection into the intestine of free fatty

acid, fatty globules apparently similar to those found after ordinary fat absorption. Similar results were obtained after feeding with fatty acids and glycerin. Fatty acids like neutral fats may be emulsified, and some have argued that they even may be absorbed in a state of emulsion. But it has been shown that fatty acids which melt at a temperature well above that of the body (*e. g.* above 60°C) are readily absorbed and this fact rather precludes their emulsification, for the fatty acid must be liquid in order to be emulsified. It has further been shown that alkaline soaps are absorbed from the intestine and that after absorption of a mixture of alkaline soaps and glycerin, apparently emulsified fat is found in the lacteals.

It is known that bile, or a solution of bile acids, readily dissolves fatty acids, but not neutral fats. It is also known that a large percentage of the bile salts daily thrown into the intestines is reabsorbed and again cast out into the intestine with the bile. From these facts taken together we are now inclined to believe that:

1. During the time of normal intestinal digestion most, if not all, the fat of an ordinary mixed meal is split into fatty acids and glycerin.
2. The fatty acid thus set free is absorbed by the cells of the intestinal villi dissolved in bile, or in a solution of the bile salts.
3. That during the passage of this at first dissolved fatty acid through the villi structures, it is combined with glycerine to form again neutral fat.

Quite a strong objection to the emulsion theory of absorption is the failure to find fat globules in the striated border of the villi epithelium cells. Careful microscopic observation rather indicates that with advancing absorption there is an increase in the size of these intra-epithelial fat globules. Thus, although it has not yet been proven that fats are absorbed as fatty acid and synthesized into neutral fats, yet the known facts make probable such an hypothesis. And as regards the old emulsion theory we can say of it, not only "not proven," but "highly improbable." There is also evidence that some of the ingested fat is absorbed as soaps. Many points bearing upon this subject have not yet been clearly made out, and the next few years may bring about still greater changes in our views. But to consider that an oil is in any adequate sense digested when it is emulsified is in the light of our knowledge of to-day, ridiculous. I mention this because so many of us, acting upon the suggestion of some enterprising tradesman

are liable to pour these made-up emulsions down the throats of our obedient patients—thinking to do them service—whereas, for aught we know to the contrary, a good preparation of the oil itself will give as good, if not better results.

BRONCHO-PNEUMONIA IN CHILDREN.

BY ALFRED E. SHIPLEY, M.D.

Read before the section on Pediatrics of the Medical Society of the County of Kings, January 11, 1901.

In infants and children we have three anatomical varieties of pneumonia, viz: Broncho-pneumonia, lobar and interstitial. Nearly two-thirds belong to the first, one-third to the second, and a limited number of cases to the third. Holt gives the proportion of acute cases of pneumonia occurring in the first two years as 25 per cent. of lobar and 75 per cent. of broncho-pneumonia, so it is evident that the latter is the form generally found in infants and children.

As synonyms we have catarrhal pneumonia and lobular pneumonia. Many include capillary bronchitis, though Tyson, in his "Practice of Medicine," thinks it best to separate this from the variety under consideration.

It is defined by Delafield as "an infectious inflammation with exudation from the blood vessels, a formation of new connective tissue and the growth of pathogenic bacteria, which involves principally the walls of the bronchi and the air-spaces which surround the inflamed bronchi."

Etiology.—It may be primary, but according to Holt in but one-third of the cases and some of these he considers as complicating influenza, but not so classed.

It is usually secondary—either to bronchitis of the larger tubes, or else complicating especially measles and pertussis, but also diphtheria, scarlet fever, varicella, etc.

As to age, about 53 per cent. occur in first year, 33 per cent. in second year, 11 per cent. in third year. More frequent during cold and wet months of the year.

Bacteriology.—In primary cases we almost invariably find the pneumococcus, very often occurring alone. The secondary cases are usually due to a mixed infection. We again meet the pneu-

mococcus in a large number of cases, and generally associated with the streptococcus. The staphylococcus and Friedländer's bacillus are also found. The association of the pneumococcus with tubercle bacilli in tuberculous cases is noticed, and in these cases the chemical aspect was that of the simple form, and so diagnosed.

Pathology.—The essential point to remember here is, that while lobar pneumonia is an exudative inflammation, broncho-pneumonia is of the productive type, and follows the course characteristic of such an inflammation. Delafield says, "the constant lesion is a productive inflammation of the walls (not the mucous membrane) of the bronchi and of the air spaces immediately surrounding the bronchi. The medium-sized and smaller bronchi are the ones affected. The process may extend from the smaller tubes to the lobules in which these tubes terminate. We may get so-called areas of atelectasis due to collapsed air-vesicles, and scattered through the lung, having no definite relation to the bronchi, may be found patches of consolidation. The bronchial glands are usually swollen and inflamed." Holt supports this view of Delafield, and thinks the surrounding air vesicles are involved as regularly as the terminal cells, the autopsies bearing it out. Pepper, in the "American Text-Book," thinks the most important part in the pathological change is a catarrhal inflammation of the lining of the smaller bronchioles and air vesicles, but says that there is always a direct extension of the inflammation to the surrounding peribronchial tissues.

As to locality, the posterior part of lungs is usually involved, most frequently the lower lobes, next in both upper and lower. In the left side more than on the right, and not commonly in anterior part of lung alone.

The pathological process is likely to pursue a very irregular course, but as one would expect in a productive inflammation, as a rule, subsides gradually and very often passes into a chronic form.

Symptoms.—They are too well known to enumerate in regular order.

Dr. W. D. Northrup, in *Medical Age* of Oct. 25, 1899, gives what he considers the three most useful signs and symptoms, especially in cases beginning centrally and which give late evidence of their character, resembling meningitis and typhoid.

(1) *Disturbance* of the pulse-respiration ratio from 4:1 to 3:1 and lower, $2\frac{1}{2}$:1, 2:1.

(2) *Fever*.—Continuous, intermittent or remittent.

(3) *Râles*.—Fine in character, over circumscribed area, and more certainly if limited to one side.

The fever is likely to pursue an irregular course. As a rule, it is high, but more of a remittent type and subsides gradually. Occasionally we get a low temperature, more often in young and delicate children. In a case of mine last winter, in which the physical signs were well marked, the temperature for several days ran as follows: 100, 100.2, 98.6, 98.2, 98, 99, 99.2, 99 F.

Physical Signs.—If the walls of the bronchi and the air spaces immediately surrounding are the only parts inflamed, we get none. If a catarrhal bronchitis is present, then we get coarse and subcrepitant râles. If a diffuse pneumonia, then we have dulness on percussion and tendency to bronchial voice and breathing. Very often the only sign evident is harsh, roughened breathing.

"The duration of the disease varies. Of the fatal cases, a great number die within two weeks; some go on for seven or eight weeks. Others succumb within a few days. If recovery, general symptoms usually subside in three weeks, but may be prolonged seven to eight weeks. Resolution requires longer time than in lobar."—Delafield.

The course of the disease being so irregular we cannot describe what might be called a type, but there are cases that group themselves into classes, and these I will briefly mention.

(1) *The Acute Congestive*.—Fever, prostration, rapid breathing. No cough. No physical signs. Almost certainly fatal within few days. The child is overwhelmed by the suddenness and severity of the symptoms. This is more apt to occur in young infants.

(2) *Acute Disseminated* (capillary bronchitis), according to Holt.

Acute onset; temperature, 100°-102° F.; pulse, rapid and full; respiration, labored. Marked dyspnea. Severe cough. Subcrepitant râles with coarse moist râles, but no evidence of consolidation. If not fatal by third or fourth day, then gradual improvement.

(3) *A More Common Type*.—May have a sudden or a gradual onset. Temperature high, but irregular and remittent, and subsides gradually. Real dyspnea. Pulse 140-200 per minute, and often irregular when it reaches the high point. Prostration shows itself as the disease progresses. Cough very distressing. Nervous

symptoms apt to come on later; *i. e.*, restlessness, etc.

(4) *Cerebral Cases*.—In this class, we have those which, in beginning, resemble very much acute and tubercular meningitis. Fever quite high, alternating delirium and stupor—prostration. There may be no pulmonary symptoms evident for several days, but as they appear the cerebral symptoms subside.

(5) *Persistent Cases*.—This is not uncommon in pneumonia complicating pertussis. It starts as an ordinary acute attack, but does not subside as readily. The cough and physical signs may continue; poor appetite; no gain in flesh and strength. To this may be added an irregular fever. Of these protracted cases, some may recover entirely; in others, portions of the lungs having consolidated to a marked degree, may recover with the lungs remaining in that condition. Death may take place from slow asthenia. The general clinical picture of many of these cases resembles tuberculosis, and often such is the diagnosis made. Or the acute inflammation may have had associated with it a tubercular inflammation of the bronchial glands, and this, later on, be focus for a general tuberculosis.

Diagnosis.—I do not propose to go into the details of differential diagnosis, as that in itself is sufficient of a subject on which to write, and time does not permit.

It is to be distinguished from:

(1) Congenital atelectasis in the first three or four months of life.

(2) Severe bronchitis, of both the larger and the smaller tubes.

(3) Lobar pneumonia.

(4) Malarial fever.

(5) Meningitis, especially if cerebral symptoms are well marked.

(6) From tuberculous pneumonia, both in acute and persistent cases.

(7) Pleurisy.

Prognosis.—Broncho-pneumonia is less a systemic disease than the lobar form, its direct effect upon the general system is less marked, nor is it so frequently complicated with pleurisy. But while at first there is less danger, still, its duration makes the prognosis uncertain. Furthermore, broncho-pneumonia often complicating other diseases attacks the patient, who may already be in an enfeebled condition. Jacobi says the danger may come from the heart, but it mainly lies in suffocation, which depends

less on the extent of inflammatory exudation than on collateral congestion and edema.

In young children with an extensive capillary bronchitis, the prognosis is bad, and due to danger of suffocation.

Osler gives the death rate in children under five as from 30 to 50 per cent. Holt says, in private practice, from 10 to 30 per cent., but the mortality in public institutions is much higher. After recovery from the acute attack, the case may go on to the chronic form or develop into one of a tuberculous nature.

TREATMENT.

(1) *Prophylactic*.—Every case of acute bronchitis, whooping-cough and measles should be looked after carefully to avoid extension of the inflammation to the lungs.

When we have broncho-pneumonia to deal with, then

(1) *Rest*.—The light in the room should be mild and the surroundings as quiet as possible.

(2) *Temperature* of the room should be between 68° - 72° , and the air kept moderately moist. Fresh air is important, the tendency being to shut up all doors, windows, etc., the child being forced to breathe over and over again the same air. Certainly, with the lungs in such a disabled condition, we should assist Nature by giving as pure air as possible. By proper precautions, all danger of draught can be avoided.

(3) It certainly adds to the comfort of the patient if he be allowed to have as much water as desired. Lemonade-water or a little dilute hydrochloric acid and water is often extremely grateful.

(4) See that all excretory functions are being properly performed. To allow free action of the diaphragm, note carefully the condition of the intestinal tract. If flatulency or constipation exists, calomel will be of service.

(5) *Counter-irritation*.—This is a mode of treatment upon which there is a great difference of opinion. Holt advises the wearing of the oiled-silk jacket and the use of the mustard paste. Delafield says that if the inflammation is confined to the walls of the bronchi and the surrounding air-spaces, counter-irritation is not likely to be of value, but is so, if catarrhal bronchitis and general congestion of the lungs are present. F. Gordon Morrill says that blisters, irritating ointments and mustard pastes are unnecessary and harmful. Pepper, in the "American Text Book," says that counter-irritants have fallen into disrepute as a routine

treatment. Personally, I have been in the habit of using mustard plasters followed by a good covering of cotton, and consider it a valuable part of the treatment. I do not care for poultices, owing to their weight.

(6) *Hydrotherapy*.—For high degrees of temperature, one of the best antipyretics is cold water. (The coal-tar products I do not like to use.) If the peripheral circulation is good, sponging with cold water or the use of friction by cold towels will be found of value. For weak and anæmic children this, of course, does not apply.

Bathing is of value, also, for its effect upon the general nervous system, and Northrup, who advocates it strongly, says "it saves nerve exhaustion; or, rather, stimulates the nervous centres. When toxæmia produces nervous symptoms—stupor, restlessness and sleeplessness, slight delirium and so on—a bath soothes and prepares the way for quiet sleep. If the circulation is poor, with cold feet and irregular heart, a hot foot-bath is good. If the bath is not used, then apply warm packs to the limbs and cold to the trunk and head. Having the extremities warm keeps the peripheral arterioles from contracting under the cold swathing."

(7) *Drugs*.—Personally, I prefer to use drugs sparingly in early days of the disease, reserving their use until later, when the general system begins to be depressed.

Aconite, if anything, I use early in small and frequent doses, but do not care to persist in its use too long. In direct connection with this subject, D. H. Illoway, of New York, in an article on "The Abortive Treatment of Pneumonia, Catarrhal and Croupous, in Infants and Children," published in *Pediatrics*, December 15, 1900, thinks the disease may be cut short by the use of a combination of tincture aconite and veratrum viride. After citing the general opinion held in most text-books, that the disease cannot be cut short, by any means, at the present time, he gives a number of his own cases treated in this manner. In quite a few instances where the patients have been running temperatures of 103° and thereabouts, with a general listless, apathetic appearance, and having used this prescription, he has found them bright and cheerful on the following day, the temperature reduced, and the child beginning to improve from that time on. The formula as given was:

Tinct. Ver. Viride..... gts. vi.

Tinct. Aconite..... gts. ii.

Aq. Dest.

Syr. Tolut..... aa ʒss

Sig.— $\bar{5}$ i q. $1\frac{1}{2}$ hrs. for infants. In older children $\bar{5}$ i q. $\frac{1}{2}$ hr. for five doses, and then every hour. If the heart was tumultuous in action, then he gave:

Infus. Digit. $\bar{3}$ ss.

Liq. Ammon. Acet. $\bar{3}$ ss.

$\bar{5}$ i q. 2 hrs.

He does not think the aconite and veratrum viride merely reduces the temperature, but permanently affects the pathological process—affects the congestion and inflammation. As to danger of aconite, he has never seen any bad results from use, but on the contrary, nothing but benefit. Nor did he use a steadily increasing dose of veratrum viride, which it is claimed is necessary in order to be efficacious.

In the issue of *Pediatrics*, June 15, 1900, Dr. A. Goetman gives his treatment of a case of broncho-pneumonia in a child six weeks old. He ordered calomel, gr. 1-10; q. 1 h., and tincture aconite, \mathfrak{m} i. q., 1 h. for 6 hrs. Nine days after, child was worse, the aconite was stopped, and aromatic spirits ammonia, q. 2 h., in brandy and strychnine, gr. 1-150 q., 6 h., were given, together with alternating hot and cold baths for five minutes. The child recovered. The dose of aconite seemed to me a very large one for a child of that age.

Expectorant mixtures, especially if of a depressing character, should be avoided or used very sparingly, if at all. J. Park West advises codeine for pain and cough.

It is important to watch the heart carefully, and upon the least indication of effort to keep up proper circulation, start in with stimulants. Alcohol is of value in later stages of the disease, $\bar{3}$ ss to $\bar{3}$ iii in 24 hrs. of whiskey or brandy, well diluted. Strychnine is of great value, and digitalis and strophanthus according to indications. Northrup advises strychnine in gr. 1-100 to 1-60 doses up to effect on deep reflexes. I have used atropine with good results in cases showing irregular respiration and dyspnea.

In persistent cases, good tonic treatment is indicated, and sometimes potassium iodide will prove of benefit, as will also cod liver oil.

DISCUSSION.

Dr. Henry N. Read: I will confine my remarks to the prognosis and treatment of this disease. The prognosis is very grave. The death-rate is very high. Thirty-five per cent. would be a low estimate. These cases must be supported from the start. I should

dislike to use a depressing plan of treatment. I do not believe the disease can be aborted. I do not believe that *veratrum viride* or aconite should be used in this disease. My practice in these cases is to use a supportive plan of treatment. Stimulate the heart. I use external applications and the pneumonia pad. I find inhalations useful. I use compound tincture of benzoin or heated muriate of ammonia by inhalation. I do not use digitalis because I do not wish to upset the stomach. As an antipyretic I use cold applications which I consider by far the best we have. I give very little medicine in this disease. During the first week I use strychnine in $\frac{1}{300}$ of a grain doses for an infant. After the third week I am partial to the use of massage and pulmonary gymnastics. The digestion should be carefully preserved.

Dr. Leonard C. McPhail: I would like to speak of an epidemic of pneumonia which occurred at the orphan asylum a year ago. Some eighteen cases were seen, ranging in age from two and one-half to twelve years. In my opinion, one of this number contracted the disease from the others. This disease was directly traceable. All recovered. I think the treatment of these cases should be made at the bedside. I use the oil silk jacket in every case. I also stimulate.

Dr. Wm. M. Hutchinson: I think we should protest against the use of aconite and *veratrum viride* in these cases.

Dr. William A. Northridge: Of course, the greater the lung involvement, the more pronounced the respiratory symptoms. The most important of these are: Rapid respiration, dyspnea, cough and the physical signs. The rapidity of the respiratory act is by many much underrated. I think most pediatricists have the correct idea. It is essentially a very rapid act in pneumonia in children, running up to 120 respirations per minute in some cases, and quite commonly to 100 per minute. I have here a chart of a case of pneumonia occurring in a boy of two years of age. In this case, as you may see, the respirations mounted to 110 per minute. Also 100, 90 and 80 per minute. The boy recovered. The usual trend in these cases is up to 80 per minute. Cough is always present and is usually severe and painful. This most distressing symptom is much relieved by the application of large, hot, flaxseed meal poultices. I may be old-fashioned, but I find great benefit from these used during the first two days. I have no sympathy with the pseudo-scientific idea which precludes their use. If the cough is hacking and troublesome, it may be allayed by the administration of the tincture of hyoscyamus. This drug

checks the cough without locking up secretion. I am in the habit of placing these cases in the corner of a large room and building about them a room with blanket walls and keeping them there until they are well. I believe this plan hastens the cure and prevents the extension of the disease. I have the room well ventilated from the upper part of the window farthest from the corner, and kept as near 70° F. as possible.

Dr. Henry N. Read: I am very much in favor of the use of the poultice in cases where there is pain in acute pneumonia.

Dr. W. L. Chapman: In cases that are slow in convalescing I like to use the iodide of iron.

Dr. Henry N. Read: I believe the use of the syrup of hydriodic acid or iodide of potassium is of great value in the long-standing cases.

Dr. Elizabeth Hatton: I believe in putting a child, ill with this disease, into the hot bath.

Dr. Elias H. Bartley: I believe in the use of the old-fashioned poultice and I am glad to hear Dr. Northridge uphold its use. I believe it is valuable in the first forty-eight hours as an abortive treatment. Under its use I have seen the lung clear up. The poultice brings the blood to the surface and thus relieves congestion, as does the hot bath. I am fond of using the old-fashioned spirits of mindererus for the first forty-eight hours. I have seen good results follow the use of very small doses of the tincture of aconite root— $\frac{1}{5}$ of a drop every hour.

Dr. William M. Hutchinson: How are the poultices used?

Dr. Bartley: I do not limit the use of poultices. I have them placed over the chest, back and front.

Dr. Read: I do not believe in poulticing all the time. I poultice until pain is relieved.

Dr. Northridge: I order the poultices to be put on back and front for three hours, changing them for hot ones every half hour. Then a rest of three hours, and poultice again, and so on until relief is obtained. Continuous poulticing weakens the child, intermittent poulticing relieves but does not weaken. A warm, dry pneumonia pad should always follow the poultice.

Dr. Shipley: I think we should treat each patient individually. I merely mention the fact that I do not use poultices because of their weight. I have never had any bad results from their use.

LYMPHOID GROWTHS OF THE NASO-PHARYNX.

BY W. F. DUDLEY, M.D.

Read before the Medical Society, of the County of Kings—Section on Pediatrics April 12, 1901.

This pathological condition is of special interest to both the pediatricist and the rhinologist, for the following reasons:

1. It is essentially a disease of childhood.
2. It is of frequent occurrence.
3. It is productive of local and general disturbances of a serious character.
4. Its treatment by radical excision affords such complete relief to the patient that the operation may justly be termed one of the most satisfactory within the domain of minor surgery.

The lesion has been accorded a varied nomenclature, and is recognized as adenoid or lymphoid growths or vegetations, enlargement of the gland of Luschka, the third tonsil, and most correctly as hypertrophy of the pharyngeal tonsil. In the normal naso-pharynx there is a small mass of lymphoid tissue, situated on the upper posterior wall, and extending forward on the top or roof of the space. It therefore lies upon the anterior surface of the superior vertebræ and upon the basilar portion of the occipital bone. On either side is a depression, the fossa of Rosenmüller, and in front and slightly below these fossæ on the lateral walls of the naso-pharynx are the Eustachian prominences.

The pharyngeal tonsil constitutes the upper segment of a circle of lymphatics, being connected with the faucial tonsils by a fine chain of glands, extending down the wall of the pharynx behind the posterior pillars of the left palate. The lymphatic tissue at the base of the tongue, known as the lingual tonsil forms the lower segment. Thus is completed a ring of glandular tissue which is an apt absorbent of infectious material, and which is extremely susceptible to inflammation. This affords a reason for the rapid extension of disease from one part of the pharynx to another, and may account for the fact that chronic enlarge-

ment of the tonsils of the fauces and naso-pharynx are very generally associated. Hypertrophy is even more common in the vault than in the fauces; the proportion is given by Dr. Lennox Browne as 6 to 5. He further states that hypertrophy of the naso-pharyngeal tonsil constitutes the main element of disease in 25 per cent. of all affections of the upper part of the throat, including the fauces. In my own work, this growth has been found in about 8 per cent. of all cases examined for abnormal conditions of the upper air passages. E. L. Shurly, in his recent publication on "Diseases of the Throat and Nose," claims that 90 per cent. of these hypertrophies develop during infancy and early childhood. The condition may be congenital. I have seen complete obstruction of the post-nares from this cause in an infant of three weeks and in one of five weeks of age, besides several others under twelve months. In these cases, the obstructive symptoms had existed from birth. The majority of patients exhibit the initial symptoms as the sequence of an infectious disease, or of a simple acute inflammation of the upper respiratory tract. During early life the lymphatic structures are extremely responsive to irritation, and if this be prolonged, vascular changes inevitably ensue; hypernutrition is established, and hypertrophy results.

It is natural that the local inflammation accompanying an infectious disease should permanently damage the adjacent glands, owing to the intensity of the process and the presence of a specific poison, but the most prolific source of lymphoid growths is recurring attacks of simple inflammation of the nose and throat, such as are commonly termed "severe colds in the head." The extreme susceptibility exhibited by some children to "colds" may be the result of hereditary dyscrasia, malnutrition, improper clothing, or exposure to marked thermal variations. I would emphasize the fact that each "fresh cold" further lessens the resistance of the glandular structures to inflammatory changes. The blood vessels become permanently dilated, congestion becomes chronic, new cell formation is active, and produces a permanent overgrowth of the gland tissue. Congenital growths may be the result of hereditary taint, of ill health of the mother during pregnancy, or as noted by Dr. French, of a marked discrepancy between the ages of the parents. At puberty the pharyngeal tonsil generally diminishes in size, as the result of a colloid degeneration of both the parenchyma and the reticulum. This retrograde metamorphosis is far more pronounced in the tonsil of the naso-pharynx than in those of the fauces.

Occasionally hypertrophy persists into middle age, but it originates always in infancy and childhood. Patients having lymphoid hypertrophy present a well-defined clinical picture, and in typical cases the symptoms are almost unmistakable.

The possible results of this form of respiratory obstruction may be classified in the following groups:

(1). Anatomical changes in the soft tissues and bones of the head and thorax, from excessive respiratory effort.

(2). General malnutrition from deficient oxygen supply.

(3). Affections of the nervous system from imperfect elimination of CO_2 .

The first group embraces the symptoms that most positively characterize the disease.

Obstruction of the posterior-nares enforces buccal respiration and gives to these patients the name, of "mouth breathers." But as an air channel the mouth is quite inadequate. In children the vertical dimensions of the naso-pharynx and pharynx are comparatively less than in the adult, and the lower margin of the soft palate is in contact with the base of the tongue. Lymphoid growths bulging downward force the velum forward against the tongue, and the faucial tonsils if protruding still further interfere with the mouth breathing.

Respiration is labored and at night is accompanied by loud snoring, the tissues then being most relaxed.

The hard palate is often highly arched, and the superior maxilla contracted laterally, causing the upper incisors to either lap or project forward. The voice tones are dull and lacking in resonance, since the sound waves are projected from the mouth only, the arch of the naso-pharynx and nasal cavities being deprived of their function as a sounding board.

In the naso-pharynx the Eustachian orifice is in close proximity to the hypertrophy. Inflammation may extend to it and thence to the middle ear, either by continuity or from direct pressure of the growth. This constitutes one of the gravest sources of danger from this disease. Reports of the frequency of ear complications in association with lymphoids vary, depending upon the special field utilized by the observer. In my experience about 40 per cent. of patients having lymphoids, give a history of middle ear inflammation; but the percentage has been given as high as 80 per cent.

There is often a muco-purulent discharge from the nasal cav-

ities, and attacks of coryza are frequent, and result from slight exposure.

The *facial expression* is extremely typical and impressive. The maxillary and malar bones are contracted laterally, giving the face a narrow or wedge-like shape. The bridge of the nose is flattened. The muscles of the alæ are atrophied from non-use, narrowing the nasal openings. Depression of the nasal bones draws down the inner canthus of the eye.

The constantly open mouth permits drooping and eversion of the lower lip, making it appear thickened, its surface is dry and uneven. The cervical glands are often slightly swollen and hard.

The deformity of the thoracic walls may be pronounced and is the result of the unnatural laboring of the inspiratory muscles in the attempt to draw in a sufficient supply of air.

The sub-clavicular spaces are depressed, the lower ribs drawn in, with protrusion of the sternum; or there may be an antero-posterior contraction of the thorax, with depression of the sternum, especially at the ensiform; a great hollow appearing at the epigastrium, from the action of the diaphragm.

The lower ends of the scapulæ protrude, the shoulders being drooped forward and downward. The combined result of poor nutrition and improper breathing produces a chest which is both undeveloped and too small in circumference. This condition which is so threatening to the future health and usefulness of the patient, is of course most marked when the obstruction is great, and when operative measures have been too long deferred. The outlook for relief and correction of the deformity will depend upon the age of the child at the time of operation, on account of the degree of ossification; and also upon the post-operative training to establish a proper method of breathing and to maintain an erect posture.

The *second group* of symptoms comprise the results of malnutrition. Impaired vitality, consequent upon oxygen starvation, is apparent in nearly every case, varying in degree with the amount of obstruction. The patients are undersized, pale, and thin. The muscles are relaxed and of poor tone. The skin and mucous membranes are lacking in color. There is a persistent anæmia, and but slight relief is afforded by forced diet, tonic treatment, or change of residence to the best of climatic surroundings.

The hemoglobin of the red blood cells is far below normal, and there is moderate leucocytosis. A cardiac systolic murmur at the base can be detected in about 10 per cent. of these patients,

but since it almost always occurs in weak and poorly nourished children, and disappears soon after operation, the murmurs are doubtless due to the anæmia.

The *third group* of symptoms refers to mental and nervous manifestations. They vary in form, and in frequency to a degree that is puzzling. The mental attitude is generally that of depression or aprosexia. This sluggishness may be due to the condition of the blood, to the tardy lymph-circulation, to poor vitality, or to the lessened opportunity to cultivate the mind from concurrent deafness. Other children show decided irritability of the nervous system. They are in some respects precocious in learning, unnaturally active physically, restive under any restraint, of peevish disposition, have a fickle appetite and poor digestion. They may have nocturnal enuresis or diaphoresis, night terrors and a restless and interrupted slumber. Dr. Lennox Browne asserts that "in almost, if not all, cases of laryngismus stridulus or false croup, the subjects, if examined, would prove to be mouth breathers."

The diagnosis can be usually determined by a study of the symptoms and a review of the history. It should be confirmed, if possible, by examination of the naso-pharynx. Posterior rhinoscopy can be occasionally accomplished in tractable subjects, but it is usually impossible or at least unsatisfactory. A digital exploration of the naso-pharynx is always conclusive, it causes but a transient discomfort to the patient, and, if I may be pardoned, it is an accomplishment which by a little practice, is at the disposal of any practitioner.

To make this test, the body of the child should be controlled gently but firmly by an attendant; the examiner standing to the right of the child, encircles its head with his left hand and arm, and steadies it by holding it against his (the physician's) body. The right index finger, having been thoroughly cleansed, is passed over the tongue, under the margin of the soft palate, and slid up into the naso-pharynx, keeping closely to the posterior pharyngeal wall. If the growth be present, instead of feeling the smooth, upright wall, and the unbroken arch at the vault curving forward to the posterior extremity of the vomer, the finger-tip will encounter a soft, spongy mass breaking the natural contour and filling a variable portion of the space. If the hypertrophy is extensive the lymphoid will be felt protruding from the posterior wall at about the level of the lower edge of the velum. The finger should be rapidly advanced upward and determine

the relation between the growth and the Eustachian prominences; the finger then being well flexed is moved forward until the tip presses against the sharply defined vertical, bony edge of the vomer separating the nasal chambers. By noting the extent of the septum left free between the growth and the soft palate at the posterior nares, we may judge the degree of possible nasal respiration. But at times the hypertrophy is not symmetrical in development. The posterior wall of the pharynx may be free and the lymphoid tissue occupy the front portion of the nasopharynx, hanging like a curtain between the lateral walls, and effectively occluding the posterior nares; or the mass may be confined to the curve of the vault, filling the fossæ of Rosenmüller, pressing the Eustachian prominences, and threatening the safety of the middle ears.

The *nature* of the tissue also can be felt; the surface of the mass may be smooth and firm to the touch, or it may be nodular, boggy, and yielding. The former condition indicates interstitial and the latter parenchymatous hypertrophy. Upon withdrawal, the finger is generally stained with blood. This is always the case if the growth is of the soft variety. During examination especial care should be taken against possible injury to the Eustachian orifices.

The *only treatment* that can afford relief is complete excision of the hypertrophied tissue. This is indicated whenever the growth, irrespective of its size, is accountable for any of the symptoms mentioned.

It is essential for the success of the operation, that the work of removal should be thorough; that it should be as expeditious as is consistent; that undue shock should be avoided; and that surgical asepsis should be observed as far as possible.

The general health of the child should be improved if necessary by a preparatory course of tonic treatment. At the same time the catarrhal inflammation of the nose and throat may be mitigated by the use of mild alkaline detergent sprays. The toilet of the teeth and mouth should receive strict attention. Immediately prior to operation, a suitable solution of peroxide of hydrogen should be employed for this purpose.

The operation should be performed under anæsthesia. This demands a knowledge of the condition of the patient's heart and kidneys, besides the usual attention to the digestive tract.

For anæsthesia, the most desirable results are obtained by using nitrous oxide during the primary stage and then substi-

tuting ether. By this combination the period of excitement and resistance is minimized, and in my experience, no harmful results have occurred.

To effect excision, instruments should be employed that can safely reach every part of the naso-pharynx. The cutting forceps, devised by Dr. French, seem to entirely fulfill the requirement. Before closing the operation the cavity should be carefully explored by the finger to make sure that the work has been thorough.

The time required for removal of both the faucial and pharyngeal tonsils is from 10 to 15 minutes. This is influenced by the success of the anæsthetizer and by the amount of hemorrhage. I prefer to operate with the patient seated upright in a chair, to which he is securely bound. In this position the naso-pharynx is most easily reached. Much of the blood can be drained out through the nose by tilting the head well forward after cutting, and there is an actual saving of about 60 per cent. of the hemorrhage which occurs when the operation is performed in the recumbent position with the head pendant from the edge of the table, owing to the freedom from congestion of the upper extremities. The upright posture favors perfect drainage of blood from the vault, while the recumbent position permits the retention of blood clots, with the possible result of middle ear infection.

After operation convalescence is rapid and devoid of pain. The patient is rarely confined to bed for more than thirty-six hours. Detergent sprays of warm normal salt or boracic acid solutions are advisable, and the greatest care should be taken against exposure until the wound is healed, for an acute "cold-in-the-head" at this stage may impair the result.

It should be noted that the operation simply makes nasal respiration possible, to ensure it, it is frequently necessary to correct the habit formed of keeping the mouth open, especially at night. This can be effected during sleep by the use of a strip of gauze bandage passed under the chin and over the top of the head, serving to support in position the lower jaw.

The proper accomplishment of such an operation as described, requires a strict observance of the principles of aseptic surgery much attention to minor details, and the intelligent co-operation of the parents of the child, but for all this, there is more than compensation in the restored vitality, health, and comfort of these little patients.

PROGRESS IN MEDICINE.

OPHTHALMOLOGY.

BY JAMES W. INGALLS, M.D.

HYGIENE OF THE EYE.

Under the title of "Hygiene of the Eye at the Beginning of the Twentieth Century," Schmeichler (*Berträge Zur Augenheilkunde*, December, 1900), with true German thoroughness, has written the most comprehensive treatise on ocular hygiene since Cohn's classical work of a similar title.

The different forms of conjunctivitis are considered, but particular attention is given to the subject of ophthalmia neonatorum and its prevention. Some of the results of the Credé method are shown by the following figures: In the Vienna Maternity (Gebärklinik) Königstein had charge of 3,900 infants. One-third did not receive any prophylactic treatment. The second group was treated with 1 per cent. carbolic solution. The third section was treated by the Credé method. Of those who did not receive treatment, 4.+ per cent. suffered from ophthalmia, however, in the second group, 1 per cent., and in the third group, .07 per cent. were affected. [It will be recalled that Howe (*Trans. Amer. Ophthal. Soc.*, 1897,) tabulated nearly 50,000 cases. Without going into details, it may be briefly stated that of the 17,000 cases which did not receive any prophylactic treatment over 9 per cent. had ophthalmia, whereas of 24,000 cases which were treated by 2 per cent. silver solutions only 0.65 per cent. were affected.—J. W. I.]

Reference is made to Cohn's statistics which show that, in 1876, in 22 blind asylums 30 per cent. of the inmates were blind from ophthalmia, while in 1895 only 19 per cent. were due to that cause. According to Dufour, in Switzerland in 1843, 45 per. cent. of blindness was due to ophthalmia neonatorum, but in 1894 only 6 per cent.

As showing the value of the skilled ophthalmologist, it may be stated that in Europe there are nine blind persons to 10,000 of the population. But in Egypt the ratio is 500 to every 10,000, or more than fifty times as great as where skillful treatment is obtainable. It was also found that, doubtless due to the same reason,

a somewhat similar condition exists between the urban and the country population. In the large towns of Finland the ratio of blind people was 7.9 to 10,000, while in the country districts it was more than double, or, to be exact, 16.4 to 10,000. In Norway, in the cities, ratio was 8.3 in the country, 14+ to 10,000.

[The real difference is much greater than is indicated by the foregoing figures. For in the cities there is a larger proportion of people engaged in those mechanical pursuits which are frequent causes of injury to the eye. Also in the cities there is a greater liability to the different contagious diseases which produce blindness.—J. W. I.]

EXCISION OF THE SUPERIOR CERVICAL GANGLION.

For three or four years past a number have advocated the removal of the superior cervical sympathetic for the relief of glaucoma. Abadie, in a paper before the French Congress of Ophthalmology, May, 1897, advanced the theory that glaucoma was not a disease of the eye itself, but was the result of an impaired condition of the superior cervical sympathetic. Therefore in cases of glaucoma which failed to improve by the usual methods of treatment, Abadie advised excision of the affected ganglion. A few months later, Jonesco reported his first operation to the Academy of Medicine in Paris. Since that time about twenty surgeons in different parts of the world have repeated Jonesco's operation. Some are very enthusiastic, others report failures.

Last year, 1900, at the meeting of the Ophthalmological Society in Heidelberg, Grunert gave a résumé of sixty-two operations done by different surgeons. Of these operations forty were successful, the remainder unsuccessful. Sucker reported three operations. (*New York Med. Jour.*, February 29, 1900.) So far as we are able to learn, the most complete and comprehensive compilation is by Ziehe and Axenfeld. ("Augenheilkunde" iv Band, Heft 1-2, 1900.)

They review over seventy histories, and conclude that the extirpation of the superior cervical sympathetic is a justifiable procedure in all those cases of glaucoma where the usual measures have failed to give relief.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section in Laryngology, Rhinology and Otology.

WILLIAM C. BRAISLIN, M.D., EDITOR.

Fifth Stated Meeting, March 21, 1901.

*Tuberculosis of Ear, Nose and Pharynx.**The Middle Ear in Tuberculosis, B. C. Collins, M.D.**Tuberculosis of the Nose and Pharynx, W. G. Reynolds, M.D.*

THE MIDDLE EAR IN TUBERCULOSIS.

BY BURNETT C. COLLINS, M.D.

It is not my intention to exhaust the subject in this paper, but merely to present it in order to start a discussion.

How do the middle ear structures become affected in tuberculosis? Regarding the structures as an extension of the upper air passages, the question is readily answered. The etiology of tuberculosis does not enter into this discussion, but the fact cannot be overlooked that the mere presence of tubercle bacilli does not mean a tuberculosis. It is quite unnecessary to call attention to the frequency of tubercle bacilli in the nose and throat. Examination of scrapings of their mucous surfaces often show their presence and yet the individual in whom they are found may be in perfect health.

The ear seems to resist tubercular infection much longer than the upper respiratory tract. Wright, in a recent paper, reports involvement of the nose and larynx in about 16 per cent. of phthisical cases. This also agrees with the reports of many other observers.

At the Kings County Hospital I examined sixty-two phthisical patients. There was no doubt about the diagnosis of phthisis in these cases clinically as well as microscopically, bacilli having

been found repeatedly in the sputum of all of these patients. In only four of the cases were the ears involved. One ear only in three cases; both ears in one. In all of them the disease in the lungs was well advanced.

Schwabach found in 139 phthisics of one hospital eight cases of aural suppuration, or $6\frac{9}{10}$ per cent. In another hospital, 121 patients, $7\frac{8}{10}$ per cent.

Considerably smaller is the percentage according to the statistics of Moldenhauer. In 294 phthisics, only $2\frac{4}{10}$ per cent. showed tubercular involvement.

Aural tuberculosis has received very little attention, and little has been written on the subject in the English language. The Germans have given it more attention. Politzer, 1865, was one of the first to describe the disease clinically. The older writers made some investigation on the subject, but it was not until the discovery of the tubercle bacillus by Koch that the pathology of this form of disease received marked advancement. Little is known even now of the pathological changes in the mucous membrane of the middle ear in this disease. Politzer has observed a number of mastoid bones of phthisical subjects, and found them as destitute of mucous membrane as in a macerated bone. The ossicles were often lacking, the tympanic membrane completely destroyed, and where the ossicles were present they were denuded of mucous membrane and loosened.

Habermann could only distinguish the tuberculous nature of the ear affections in five cases out of twenty-one examined microscopically. In these five the mucous membrane of the middle ear was swollen with occasional groups of giant cells containing tubercle bacilli.

In most cases the Eustachian tube is the channel of middle ear infection, the morbid changes are the development of tubercles in the mucous membrane. When the tube is alone involved, no clinical symptoms are present. When the tympanic membrane is first attacked a myringitis is the result characterized by the development of small millet-seed elevations similar to miliary tuberculosis in other organs. These, according to Kretschman, ulcerate early and produce the sieve-like perforations sometimes seen in this disease. This condition may remain stationary for a considerable period, but as the disease advances the membrane is finally destroyed and the ossicles are attacked, especially the malleus and incus. Oppenheimer reports a case where the patient found the entire ossicular chain adhering to the pledget of

cotton with which he was cleaning the ear. When the bony walls are attacked the promontory is usually the part first involved, tubercular changes taking place in the facial nerve and causing in some cases early facial paralysis. The destruction may be so great as to involve the carotid artery and cause death by hemorrhage. Seven cases reported.

In a case recently reported by myself, a child had been the subject of a middle ear suppuration and involvement of the mastoid. Mastoid operation gave temporary relief, and after the wound closed the child developed cerebral symptoms and died. Autopsy showed tubercle involving the brain substance in the temporo-sphenoidal lobe. Meshes of the pia mater everywhere studded with tubercle, tubercle in the lungs, liver and spleen. A meningitis; sinuses normal.

In 1885 Habermann reports a case somewhat similar, but without rupture of the drum and discharge from the ear.

Maccwen ("Pyogenic Diseases of the Brain and Spinal Cord") describes tuberculosis as a non-pyogenic infection of the middle ear and its adnexa, often met with in infancy and childhood. It is an insidious infection often occurring without rupture of the tympanic membrane and with little or no pain. Great destruction of bone can take place, the sinuses or brain may be involved before the affection can be recognized. The mastoid periosteum may not be involved until late in the disease. The bone may be a mere shell and yet no outward swelling.

The English and American text-books have very little to say on the subject. Burnett, in his admirable treatise on the ear, nose and throat, passes the subject very rapidly by merely stating that while tuberculosis is known to involve the retina and even the optic nerve itself, it very rarely leads to any recognizable auditory derangement. Roosa says that very few patients suffering from phthisis pulmonalis ever recover from middle ear suppuration, and considers that the cough prevents the tympanic membrane from healing.

Dench, Buck, Greene, McBride, all describe very accurately but briefly the clinical picture of middle ear tuberculosis.

How shall we diagnose this condition?

Inflammations of the middle ear can safely be regarded as extremely painful affections. If we have a congested ear without pain and observe that the ear is suppurating, we must think of two conditions—either the patient has had the trouble before, or we must suspect tuberculosis. We would not think of tuber-

culosis in a robust individual without cough or emaciation. Generally a carefully elicited history will decide this point. Primary tuberculosis, being very rare (case reported by Knapp in 1898, also one by Goldstein in 1900), we must examine our patient most thoroughly and will generally be rewarded by finding a pulmonary phthisis or a laryngeal affection. Appearance of the ear is also of great value, the drum is usually the seat of a large, gaping perforation, tissues pale, drum and mucous membrane bleached, and in spite of neglect of the ear, granulations are very rarely present. Rapid destruction of the drum and ossicles are common. Examination of the ear discharges will often detect bacilli, but should not be relied upon. The examination of many slides will often be necessary before the germ is found. Nathan found tubercle bacilli in twelve out of forty cases of otorrhea. In eight, tuberculosis in other organs. In cases where there are at times twinges of pain, it is due often to a secondary streptococcus infection, and in such cases will be not likely to show bacilli. Of course, not every middle ear suppuration occurring in a tubercular patient can be regarded as a tubercular process.

The history of a typical case may be of interest. The patient, a woman of thirty-two years, was referred to me by Dr. Staebler, November 4, 1900. Had never had ear trouble previous to ten days before, when her left ear began to discharge and hearing became dull on that side. No earache whatever. Examination showed large drum perforation central, rest of drum very pale and mucous membrane the same. The discharge was profuse. Large perforation in nasal septum, edges ulcerated. Patient emaciated, severe cough, profuse expectoration. Tubercle bacilli in the sputum, and also in the discharge from the ear. She was referred to her physician for treatment for her general condition, which was very satisfactory.

Two weeks later the other ear began to discharge, and one morning she brought me the malleus that came away while syringing the ear. The ear first affected healed and membrane closed; the other ear is still discharging. Streptococci found in the discharge from this ear, but no bacilli.

The prognosis of this affection depends largely on the patient's general condition. If the lung condition is advanced and bacilli are found in the ear discharges, it is absolutely unfavorable.

Very much can be done for these patients. Care of their general condition is of as much importance as care of the ear.

The nose and throat must be carefully looked after, and the Politzer air-douche must be used with discretion.

For the general condition strychnin, hypophosphites, creosote, and the various other remedies used in this condition all do well in certain cases. My patient did well on carbonate of guaiacol.

For the local condition, it is both surgical and medical. As a rule, surgical measures are contraindicated except where the condition is localized. The medicinal treatment consists in keeping the ear clean: H_2O_2 is very useful. If the discharge is not profuse dry treatment is better than syringing. Iodoform and boric acid very good, also nosophen. Iodoform gauze drain in some cases. Lactic acid so useful in these throat conditions does not meet with the same success in the ear. Change of climate and care of the general health may result in a cure.

TUBERCULOSIS OF NOSE AND PHARYNX.

BY WILLARD G. REYNOLDS, M.D.

Whilst bacteriologists have taught us much of the growth and habits of the tubercle bacillus, and rhinologists have made wonderful progress in the study of the nose and throat and their functions, yet many problems are still unsolved.

It is not easy to explain how the bacilli are able to reach the lungs, and there set up a tubercular lesion, and the nose and throat escape.

When we consider the devious course pursued by the air passing through the narrowed nares, and past the narrow and moist passages between the septum and turbinateds; past the pharynx with its irregular damp surface; by the glottis with its depressions, and finally coming to the desired spot in the lungs, we find cause for wonder.

But the explanation becomes more difficult when we consider how few noses are normal. Frequently both nostrils are almost occluded by hypertrophies of turbinateds combined with deflections and spurs of the septum.

Naturally, with this condition we get retained and infected secretions which ought to furnish a good culture medium.

Tuberculosis of the nose, except as a very late manifestation of pulmonary tuberculosis, is rare, but primary infection is exceedingly rare.

Germs must certainly enter the nose with the inspired air. Undoubtedly, many pass through, but what proportion passes through is a much-discussed question. A vast amount of work has been done in studying the kinds and virulence of the germs and also to determine the effect of the nasal secretion on bacteria.

Some authors have held that the secretions of the nose are germicidal, but the findings are doubted.

Unquestionably the free nasal secretions are of great service in that they are continually washing the germs away. The cilia are doubtless of much benefit, especially in preventing bacteria lodging in the upper nares.

If the phagocyte theory is to be accepted it would be especially beneficial to this fact because of the very abundant blood supply.

It is certain that operations are performed with impunity on the nose with little regard for asepsis, and it is rare that any deep infection occurs.

Primary tuberculosis of the nose is so rare that many question the diagnosis, affirming that it must always be secondary. Herzog reported twenty cases of primary infection, and others have been published since.

It is certainly a difficult matter to prove that a given case is primary.

The failure to find physical signs of pulmonary involvement would not necessarily be proof.

How frequently, in post-mortem, are found infected glands of neck, chest or abdomen, which had not been discovered during life.

Or, a general miliary tuberculosis may occur and the lesion of the nose, which was diagnosed as primary, might be only a local manifestation.

Because the treatment instituted for a supposed local lesion resulted in a cure, would not be conclusive proof that the lungs or other tissues had not been involved, for in treating the local lesion the patient is put on general treatment.

Statistics as to the frequency of secondary involvement differ so widely, that we can but conclude that either the clinical diagnosis was wrong or the bacteriologist was mistaken.

Judging from my experience at the New York Eye and Ear Infirmary and other hospitals, and after consultation with men who have seen a large number of cases, I can but conclude that

tubercular lesions of the nose, which are capable of visual demonstration, are very rare.

On the other hand, Solly, referring to 200 cases of pulmonary tuberculosis at Colorado Springs, found that 28 per cent. had nasal lesions.

But Willigk, in his findings on 476 post-mortems of tubercular cases, found the nose involved in but a single instance.

The primary form might be caused by direct implantation of germs from a dirty finger or instruments on an abraded surface or by wounding of the sound tissue. Or, given a primary sore, which condition is not at all unusual in the nose, the infection might occur from inspired tubercle bacilli.

It is an undecided question whether the bacilli of Koch are able to pass through the healthy membrane of the nose and set up a primary lesion at that spot.

Secondary infection is much easier of explanation, as the bacilli, whether inhaled or escaping in the sputa, are able to successfully attack the upper air passages, because the system is in a fit condition.

Lymphatic and blood systems may also carry the germs. Or the involvement of the nose may be only one of the manifestations of general miliary tuberculosis.

In the upper air passages we find the two conditions—either the ulcer, or the nodular, granular—a hyperplastic form.

Two or three writers have described a tubercular tumor of the nose situated upon the triangular cartilage, which resembles at first sight an abscess of the septum; but if such condition exists, it is certainly not common in this country.

The ulcer, whether from direct infection of a primary sore or from breaking down of the nodular form, presents much the same appearance as tubercular ulcers elsewhere.

The amount of the discharge, character and odor depends largely on the size and growth of the ulcer, and whether the infection is a mixed one.

In a majority of cases the lesion is situated on the triangular cartilage, but it may be on the bony part or on floor of the nose and occasionally on turbinates.

The ulcer presents an irregular roundish appearance with floor slightly depressed or even flush with the surrounding parts. The ulcer presents a sluggish appearance, covered with a dirty grayish discharge, and the surrounding tissues present an anemic appearance.

Or, the parts may be concealed by a scab, on removal of which slight bleeding takes place.

Generally it causes but slight discomfort, pain or constitutional symptoms.

The growth is often slow but progressive, and at times confining itself to the mucous membrane, being unable to attack bone or cartilage.

But the case may be active from the beginning, so that all tissues are destroyed and even the sinuses may be involved. Meningitis has resulted from extension upward of the process.

The papillomatous form consists of tubercular nodules varying in size from a granular mass not larger than a birdshot up to a pea, and their number may be few or the parts may be thickly studded.

On cross section the tubercle presents the usual pathological condition found elsewhere—of large cells, infrequently giant cells, epithelioid and lymphoid cells, but the presence of the bacillus is generally hard to demonstrate.

When the lesion is secondary the diagnosis ought not to be difficult.

The ulcerative condition is most frequently mistaken for syphilis. But the history of the case in the latter, with the depressed base with its characteristic appearance, aid in diagnosis, and there are more signs of inflammation, œdema, redness, etc., and it readily yields to specific treatment.

The granulomata may be mistaken for syphilis, papillomata, lupus, cancer and angiomata.

If the case is primary the treatment should be, as most writers agree, surgical, and the diseased area thoroughly curetted, then strong lactic should be rubbed in.

If the lesion is secondary, then it will depend largely on the progress of the general infection how much surgical interference is demanded.

Of course, the parts should be kept clean and all the usual constitutional remedies administered.

The Pharynx.—Undoubtedly there have been cases of primary involvement of the pharynx, but they are very rare, and even secondary involvement is rarely seen except as a late manifestation of pulmonary disease or as a part of a general infection.

If the miliary form is seen in time, there will appear on fauces often, on the posterior pillars, little, dirty, white spots,

which quickly break down, leaving small ulcers which tend to spread, uniting with similar lesions.

The throat is usually œdematous and covered with a thick tenacious secretion.

Taking of nourishment is almost impossible, because of the intense pain.

Willigk, in his report on autopsies of 1,300 tubercular cases, found but a single instance where the pharynx was involved.

Dr. Levy, of Colorado Springs, thinks that this region is involved in $1\frac{1}{2}$ per cent. of all pulmonary cases. Even in primary involvement the prognosis is bad, and if one gets an apparent cure the lesion is apt to break down again.

In a general miliary involvement or late in pulmonary trouble, any surgical interference would probably do little or no good.

But when the lesion is localized and the patient's general health fair, then the same treatment as advised for the nose might be tried, but one wants to be careful about giving a favorable prognosis, for generally the disease progresses rapidly, often in a few weeks to fatal termination.

The diagnosis, especially if secondary, is not difficult; the usual mistake is made in calling it specific.

Pain is usually intense and becomes a prominent symptom. The evening temperature runs high, even in the primary form. Often the microscope will confirm the diagnosis.

The syphilitic ulcer is deeper, more irregular, more inflammatory, less painful—little or no fever—and yields quickly to treatment.

The Pharyngeal Vault.—It is doubtful whether there has been a case recorded of primary adenoid tuberculosis which became active and progressive, and which was not secondary to some irritation, examination or operation. Undoubtedly, the tubercle bacilli are not rarely latent in the tissue as elsewhere in the lymphoid chain.

When the tubercular activity follows an operation, it is difficult to say whether the germs were present in the tissue or whether brought there by fingers, instruments or inspired air or even by lymphatics.

Dr. Chappell reports a case of tubercles appearing in throat and pharyngeal vault a week after operation.

But it is possible in that case the germs may have been present in tissue, as patient had been taking care of a sister who had but recently died of acute tuberculosis.

The Tonsils.—Krüchman holds that 65 per cent. of all pulmonary cases show tonsillar involvement, but, of course, many object to these figures.

In a general military infection the tonsils may show the tubercles which tend to a rapid breaking down into the ulcer, which by spreading and uniting with similar lesions forms a deep destructive lesion. The parts are painful and the whole forms an acute angina. Salivation is free and the surrounding glands are involved.

But the ulcerative condition may be chronic, showing little tendency to spread, and the base of the ulcer covered with exuberant granulations.

A number of cases are recorded where active tubercular infection followed operation.

The question of latent tuberculosis of tonsil and adenoid has caused deep discussion and much research.

Professor Dieulafoy, of Paris, holds the most radical opinion, in that he maintains that quite a considerable per cent. of all marked chronic hypertrophic condition of these lymphoid growths are latent tubercular.

He gives as his results from inoculations on 61 guinea pigs with tonsil tissue, that 8 developed tuberculosis.

Out of 35 inoculated with adenoid tissue, 7 resulted positively.

But the findings of other investigators are markedly different.

Dr. Hoedenpyl had negative results from examining section of 200 cases.

Dr. Jonathan Wright, reporting on examination of slides from sixty tonsils and adenoids, could find no tubercle.

Dr. W. Howie carried out a series of experiments with negative results.

Dr. Botey, as a result of section and inoculation study, came to the conclusion that there are hypertrophic tonsils of primary tubercular character, and impossible to diagnose from the form ordinarily seen and their condition may be of larval type in some, latent in others, and it is a serious menace to health, but it may be present for years with no pulmonary symptom appearing or even involvement of neighboring glands.

The finding of the germ in the lymphoid tissue is not enough, for before infection can take place the invading germ must overcome the resistance of the human organism.

It is quite probable that more tonsils are infected than is

usually diagnosed, as doubtless the bacilli enter the crypts and there set up a local irritation.

Strassman, Dmochonisky, Kafeman and others believe that the tonsils are frequently involved in the later stages of pulmonary tuberculosis.

The Mouth.—Theoretically, the mouth ought to be more frequently involved than it is.

We all know that the mouth is often injured by foreign bodies, but primary tuberculosis is infrequent here.

The condition is much more common in men than women, possibly because of smoking and drinking.

All parts of the mouth are infected, and E. S. Smith reported five cases of involvement of the soft palate.

The tongue is infected both primarily and secondarily.

In the primary form the lesion is nearly always on the upper surface. In the secondary it may be in any part.

Often the first thing noticed is a small, hard tumor, deep in the tissues. Generally it proceeds rapidly to ulcer formation. At times only a small fissure appears externally, and the true nature of the lesion is not suspected until the edges are separated.

Or, the ulcers may be multiple, deep and rapidly destructive. The whole tongue may become infiltrated and of a deep red color.

The question of diagnosis is very important, for it has happened more times than have been recorded that destructive surgery has been done under the belief that the tumor was malignant. A more frequent mistake is made in treating the case as specific.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section in Laryngology, Rhinology and Otology.

WILLIAM C. BRAISLIN, M.D., EDITOR.

Sixth Stated Meeting, Saturday, May 25, 1901.

TUBERCULOSIS OF THE LARYNX.

*Etiology and Pathology, H. M. Smith, M.D.**Symptomatology and Diagnosis, C. E. Clark, M.D.**Treatment, Charles P. Grayson, M.D., Professor of Laryngology, University of Pennsylvania.*

THE ETIOLOGY AND PATHOLOGY OF TUBERCULOSIS OF THE LARYNX.

BY HENRY MITCHELL SMITH, M.D.

The term consumption of the larynx, throat, or trachea, was formally applied to every severe chronic disease of these structures, which might have a fatal termination. But to-day we understand by this designation simply those pathological changes which are induced by the formation of tubercle from the penetration of the mucous membrane by the tubercle bacillus.

To reach this conclusion has required a long period of time and extensive research.

The history of laryngeal consumption represents a chain of errors and mistakes, a brief *résumé* of which, nevertheless, may be a matter of interest.

Sylvius was of the opinion that laryngeal consumption was the result of infection from expectorated matter.

Lewis sought to show that those parts of the larynx were most prone to ulceration which were in most intimate contact with the sputum, and particularly the pus from cavities did he consider responsible for a cauterizing and harmful effect.

Reiner believed that mechanical irritation gave the impetus to ulceration, particularly if a previous catarrhal inflammation

had existed, and that the ulcerations appeared in definite and certain locations which were apt to be pressed upon or rubbed against in movements of the larynx.

Wünderlich observed tuberculosis of the trachea very seldom, tuberculosis of the larynx more frequently, particularly with profuse expectoration, and held the ulceration to be of a catarrhal nature.

Ruhle seldom observed tubercle in the larynx unless in connection with extensive pulmonary tuberculosis. He noted it occasionally in children after the seventh year, seldom or never before the fourth year.

Lewin's idea of ulcerations was that the first process was one of mechanical irritation.

Virchow first called attention to tubercular laryngitis as a primary disease, although most frequently met with in connection with pulmonary tuberculosis, and he recommended the larynx as the best region in which to study true tubercle. He believed that ulceration resulted from miliary tubercles in the mucous membrane, a condition only seen in the early stages of the disease.

Brunn considered the ulcerations seen in the larynx to be the result of diseased mucous follicles as well as from a diseased condition of the sub-mucous tissue, and *Trewk* assumed a previous pathological condition of the larynx, and agreed with *Reiner* as to the causative action of mechanical irritation induced by movements.

Tobaldt claimed the cause of tubercular laryngitis to be either tubercular infiltration of the mucous membrane, which, by previous disease, had broken down into necrosis, or from the further development of general miliary tuberculosis.

Wagner described what he termed "tuberculoid lymphadenoma," and claimed that the true miliary form never existed.

He believed that tuberculosis of the mucous membrane of the larynx was a frequent concomitant of pulmonary tuberculosis, but was seldom, if ever, a primary disease.

In 1879 *Heinze* stated that the only cause of laryngeal and tracheal tuberculosis was tubercular infiltration of the mucous membrane, and that ulceration in this region, without concomitant or subsequent tubercular infection, never constituted laryngeal phthisis.

Koch's isolation of the tubercle bacillus demonstrated a definite and constant etiologic factor in all tubercular disease.

E. Fraenkel found bacilli in, and between, the epithelial cells of the mucous membrane, and the question immediately arose as to the means by which they arrived there.

The great weight of opinion was in favor of infection taking place from bacillus-laden secretions from the lungs, and the question of the ability of the bacillus to penetrate the intact epithelium caused much controversy, some believing and claiming to demonstrate that this occurred, while others denied that the bacillus possessed this ability, and maintained that a previous denudation, or loss of continuity, must exist.

E. Fraenkel claimed also that the bacillus penetrated through the ducts of the glands, that infection through the blood and lymph was hardly credible, and must be the exception if it did occur.

It is conceded to-day that the bacillus does penetrate the intact epithelium, and I am so fortunate as to have in my possession a paper read by *Dr. Wright* before the American Laryngological Association in 1896, in which the accompanying plate which, by his permission, I show you this evening, demonstrates this disputed point.

The section was from the larynx of a patient far advanced in pulmonary and laryngeal phthisis. In the plate the bacilli, stained red, may be seen passing through the epithelial covering of the laryngeal mucous membrane. *Wright* remarks in connection with this case: "That whether or not bacilli can penetrate the epithelium of a healthy individual is still a matter of doubt."

It will be noted that thus far in dealing with the etiology, the bacillus alone has been mentioned as the cause of the disease, but there is another factor that is of equal importance and is becoming so recognized more and more every day. I refer to the so-called "susceptibility," "hereditary predisposition" and other terms, all of which simply mean one thing—that for the development of tubercular disease in any tissue of the body, a suitable soil must exist in which the bacillus may live and grow.

Time does not allow of more than a mention of this factor, but in it alone is the material for an extensive thesis and lengthy discussion, and a consideration of the special characteristics of the tubercle bacillus would lead us into the domain of bacteriology, which is not within the scope of this paper. It is to-day generally accepted that tubercular laryngitis may be either primary or secondary.

Much discussion has taken place regarding the question of primary origin, and although we are compelled to admit its occurrence, yet it is relatively very infrequent, and the strictly primary character of many of the reported cases is open to question.

The absence of physical signs in any given case should be accepted with due conservatism, for who will say that a focus of tubercular disease in the lungs, or other organs remote from the surface, may not have escaped detection by the most acute and best trained ear, and we should not forget in weighing the evidence in any given case before classifying it as primary, that in the diagnosis of laryngeal tuberculosis we are able to inspect the region; and sight, the most acute and reliable of the special senses, is here our guide, whereas it is impossible to employ this agent in studying internal organs.

Perhaps the future perfection of the X-ray, or a modification of it may place the study of the deeper tissues of the body in a more equal relation with those of the larynx, under which conditions cases of primary laryngeal tuberculosis may be even more rare.

It is of great importance in this connection to keep in mind the so-called latent lesions of tuberculosis.

I am fully aware that many observers regard these lesions as found in the upper air passages as "surface contamination," but latent foci of tuberculosis have been found in the best protected parts of the body, as the bronchial glands, liver, etc., so that it seems a stretch of the imagination to classify these as surface contamination, whatever may be said of those of the upper air passages, and therefore, in cases which do not come to the autopsy table, this possible factor, latency, should be taken into account before we too hastily classify a case of laryngeal tuberculosis as primary. In general it may be stated that infection of the tissues of the larynx occurs in two ways—from without, through the surface of the mucous membranes, or from within, through the lymph or blood channels.

In considering the first source of infection (namely, from without), we must remember that the inspired air containing tubercle bacilli in dust is, by the majority of observers, believed to be the most frequent source of general infection.

Assuming that the bacilli be in the inspired air, and that most cases of pulmonary tuberculosis occur by infection through this medium, and that in later stages of the disease the larynx is almost constantly bathed with bacillus-laden sputum, the ques-

tion is not so much how the larynx becomes infected as why it so frequently escapes. Some claim that for the production of the lesions of tuberculosis in addition to the suitable soil for propagation and growth, "a certain 'quiescence' is necessary, a condition which the larynx, from its motions during the acts of deglutition, phonation and respiration, does not afford."

Another reason advanced for the relative immunity of this region is that abrasions of the mucous membrane are so quickly protected by granulations or exudate that a foothold for the bacillus is with difficulty obtained.

Regarding the so-called "quiescence" there is probably no more favorable resting place for foreign material than in the laryngeal ventricles, where dust will remain perhaps for days, mixed with mucus and leucocytes, and the region being rich in lymphoid tissue, should furnish favorable material for the growth of the bacillus.

Concerning the defensive action of the granulation and exudate, I do not think it can be demonstrated that repair in the larynx is any more active and effectual than elsewhere in the body.

As against the supposition that abrasions play an important rôle in secondary infection, the experiments of Shurly and Gibbs should be noted.

They freely scarified the pharynx and epiglottis of several healthy monkeys, and applied to the abraded parts sputum from tuberculous patients without in any instance producing local tuberculosis.

They also scarified the same regions in two monkeys suffering with pulmonary tuberculosis without producing any local result.

Shurly reports the case of a patient with pulmonary tuberculosis who accidentally lodged a piece of bone in the pyriform sinus of the larynx; ineffectual efforts to remove the foreign body had considerably wounded the pharynx, as well as the aryepiglottic folds and the arytenoid cartilage, and when Shurly saw the patient, about ten hours after the accident, he, with great difficulty, removed the bone, owing to its impaction in the swollen mucous membrane.

He says, in reporting this case, that he fully expected to see a tuberculous lesion develop from the extensive laceration that the tissues had received, but no such event occurred, the patient living eighteen months after the accident, and although he was

under observation during most of that time no local lesion could be discovered.

There can be little doubt that bacilli arrive at the larynx through the lymph channels, and some observers claim that, irrespective of the channels by which the bacilli gain entrance to the body, the lymphatic system is invariably affected before the lesions appear elsewhere, and A. Heller, in 1894, formulated the following propositions in this connection:

First. The first localization of the virus in inhalatory disease takes place in the upper air passages, *i.e.*, the nose and nasopharynx.

Second. At these places the period of incubation commences and ends.

Third. From here the absorption into the blood and lymph channels takes place, and then comes the general infection.

I have devoted to the etiology most of the time allotted to me, for making allowance for the anatomical and histological peculiarities of the larynx, the pathological processes here do not materially differ from those of the same disease in other parts of the body. In general, two forms are described—the so-called inflammatory type and the anemic or infiltration type.

In the former the earliest changes are those of hyperemia, and the capillaries are distended and filled with blood corpuscles, an abundant effusion of leucocytes and small round cells occurs in the surrounding tissue, the mucous glands become swollen and filled with serum and cellular products and their acini obliterated or distorted by pressure.

After a time “tubercular-granules” appear in the stroma without necrosis, and distinct nodular formations may occur as the result of productive inflammation. There become manifest in places attempts at organization instead of necrosis, but necrosis eventually occurs from the obliteration of the vascular supply.

According to Wright, productive inflammation and the formation of depraved granulation tissue are apt to precede necrosis in most instances.

These granulations may persist for some time, but ultimately ulcerate. Giant cells may not be found in the granulation tissue in some cases, and excepting in the undoubted miliary forms where extensive ulceration or caseation rapidly supervenes, tubercle bacilli may also be absent. If the morbid process be localized, the surrounding tissue shows an active formation of connective tissue with increased vascularization—an attempt to

throw out a barrier. The pathological process is at first confined to the sub-epithelial layers, but soon involves the deeper tissues. Softening occurs, usually from below toward the surface. In the infiltration form there is a condition of anemia, the capillaries being not increased in number or in caliber, but the lymph channels are distended and the mucous glands filled with serum and lymphoid cells. The epithelial layers are thinned, and at the sites of ulcerations are either lost or merged into one heterogeneous layer.

Softening quickly occurs, and the tissues break down; the detritus from ulcers usually shows an abundance of tubercle bacilli, pus, mucus and altered epithelial cells. The regions first affected are the arytenoids, posterior wall, aryepiglottic folds and the epiglottis, and the ventricular and vocal bands may be involved at the same time, and even any of the cartilages of the larynx may ultimately be involved if the patient lives long enough.

In presenting to you this brief and rambling résumé of the etiology and pathology of tubercular laryngitis, no originality is claimed.

It has been my endeavor simply to place before you for discussion some of the most salient features and theories concerning this disease.

SYMPTOMATOLOGY OF TUBERCULAR LARYNGITIS.

BY C. E. CLARK, M.D.

This disease is detected with certainty by the aggregate and succession of symptoms.

The constitutional symptoms depend upon the extent and duration of the laryngeal, pulmonary and other complications. We have pyrexia, the temperature running in the evening at times from 99 to 102 degrees. The diaphoresis is extremely exhausting. The debility is affected by occupation more or less.

There is generally absence of appetite without loathing, yet starving, because of the dysphagia that always is a constantly present symptom.

There is more or less complete aphonia and dysphonia.

The cough is sometimes alarming from the spasmodic contractions of the larynx producing partial asphyxiation. Expectoration is profuse if the lungs are involved to any extent.

Dyspnea, due to improper articular arytenoid action, neuroses, tumefactions, or obstruction, sometimes produces apnea.

The majority of my cases of tubercular laryngitis have been men between twenty and forty years of age, weak, starving, emaciated, complaining in their hoarse voices of the great pain in swallowing; the cough and sore throat continuing to get worse with occasional remissions and exacerbations. These patients last from six months to two and a half years.

I have found the symptoms of toxic residual air poisoning and gastro-intestinal troubles also factors in this disease.

Vomiting may occur from the severity of the cough or from the presence of food, pills, necrotic tissue and other foreign substances in the almost immobile irregular laryngeal cavity. We must, of course, in the vast majority of cases add to the previously mentioned symptoms all those of pulmonary phthisis.

The acute miliary tubercular process involving the larynx, pharynx and intra-oral structures is of short duration, as death promptly ensues. This I find a rare condition.

The laryngoscopic appearance of the epiglottis, fauces, arytenoid bodies, cartilaginous articulations, attachments, vocal cords and ventricular bands will show varying degenerative disfigurements.

Inflammatory areas, of both the hyperemic and anemic types, are to be seen; but not always exclusively one or the other.

One or both the arytenoids may be swollen, hyperemic or anemic, perhaps edematous or ulcerated, diverted from their proper position by cicatrization or adjacent swelling. The epiglottis may be locally or entirely swollen, curled or twisted, perhaps only a stump left of it.

The whole of the laryngeal cavity is filled with mucus, detritus, granulations, bubbles, etc. Clearing this away, we see the multiple ulcerations and observe the anchylosed condition throughout. Yet the physiological functions of phonation, respiration and deglutition must go on after a fashion.

Dr. Killian's method of laryngeal examination I would recommend for a perfect observation of the above-described conditions in laryngeal tuberculosis.

Diagnosis.—First, we must consider the history and examine the lungs.

Second.—Use the laryngoscope and note the pyriform arytenoid swellings and other described pathological symptoms.

Third.—Use the microscope for detecting elastic lung tissue,

microbes, giant cells, etc. In 99 per cent. of cases the diagnosis may be made by the history; it is, however, best to prove it with the laryngoscope and microscope.

The hyperemic form in the early stage of the disease may be mistaken for chronic laryngitis or syphilis. The anemic type, with yellow-gray intumescence, mottled and more or less necrosed or eroded, is characteristic of phthisis. In strong contrast with anemic surroundings, a red bulbous uvula is characteristic of this condition.

The ulceration is at first circumscribed; later on it becomes extensive, irregular, sloughing and granular; looking more like syphilis, and might deceive but for the history, for, by that time, there will be extensive lung involvement. The iodides differentiate with certainty in diagnosis. In chronic laryngitis the erosions are not as deep, unless it becomes tubercular. Lupus of the larynx is easily recognized when the characteristic skin affection is present. When only the larynx is the affected part, there again we investigate history and general condition of the patient.

It seems to me that in making a differential diagnosis it would be well to observe close attention to the degree of pain. Thus in syphilis, there is slight pain, in lupus slight pain, in carcinoma, constant and lancinating pain, while in tuberculosis, pain is severe principally in deglutition.

In conclusion, remember the peculiar tumefaction of aryteno-epiglottic fold and meso-arytenoid fold, a turban-shaped epiglottis and multiple erosions and ulcerations, characteristic of tuberculosis of the larynx.

(TO BE CONCLUDED IN NOVEMBER ISSUE.)

HISTORICAL DEPARTMENT.

BENJAMIN HOWARD, A.M., M.D.

Dr. Howard was a teacher of surgery in this city for a number of years, and was qualified by nature and education to impart to others the knowledge he possessed himself. He was born in England in 1841, and died in New York, June 21, 1901. The degree of A.M. was received by him from Williams College in 1860. He graduated M.D. from the College of Physicians and Surgeons, N. Y., in 1858, served as interne in Mt. Sinai Hospital, 1858-'59, Assistant Surgeon 19th Regiment New York Volunteer Infantry



BENJAMIN HOWARD, A.M., M.D.



ALPHEUS BENNING CROSBY, A.M., M.D.,

in 1861, also in 3rd Regiment New York Light Artillery; from August, 1861, to December, 1864, he was Assistant Surgeon, United States Army. During this time he invented the Howard sick transport wagon for the U. S. Army. This ambulance wagon was awarded the first prize at the Paris Industrial Exposition.

During his professional life he was called upon to fill the following positions:

1864-72—Lecturer on Surgery, University City of New York.

1868-71—Prof. of Operative and Clinical Surgery, Long Island College Hospital.

1871-72—Professo of Diseases of the Genito Urinary Organs, University of Vermont.

1872-73—Professor of Obstetrics, University of Vermont.

1873-75—Professor of Surgery, University of Vermont.

He was a member of the New York Academy of Medicine, American Medical Association, and a Fellow of the Royal Medico-Chirurgical Society of London.

His paper on "The Treatment of Aneurism" received the prize of the American Medical Association in 1870. He also contributed papers on "Artificial Respiration," "Iodine Injections in Abscess," "Varicose Veins," and "Erysipelas."

WILLIAM SCHROEDER, M.D.

Sec. of Historical Committee.

ALPHEUS BENNING CROSBY, A.M., M.D.

During his entire professional life Dr. Crosby was a teacher. Nature and education fitted him for this work. He was born at Gilmanton, New Hampshire, February 22, 1832, and died at Hanover, N. H., August 9, 1877. His father, Dixi Crosby, M.D., L.L.D., and his grandfather, Asa Crosby, M.D., were both of New England.

Dr. Crosby married, in 1862, Mildred Glassell, daughter of William R. Smith, M.D., of Galveston, Texas.

His early education was received at Moor's Charity School and Dartmouth College, graduating A.B., 1853. A.M., 1856, and from the Medical Department of Dartmouth, M.D., in 1856. For some time he received private instruction under Willard Parker, M.D., of New York City. His medical positions have been as follows:

1856-62—Demonstrator of Pathological Anatomy, Dartmouth College.

1861-62—Surgeon First N. H. Regiment. On the staff of Generals Stone, Sedgwicks and Casey.

1862-70—Adjunct Professor of Surgery, Dartmouth, Professor, 1870.

1868-69—Lecturer on Surgery, Bowdoin College.

1866-72—Professor of Surgery, University of Vermont.

1869-71—Professor of Surgery, University of Michigan.

1870-72—Professor of Surgery, Long Island College Hospital.

1872-76—Professor of Surgical Anatomy, Bellevue Hospital Medical College.

Surgeon to Bellevue Hospital, University Hospital, Michigan, and U. S. Marine Hospital, Boston.

He was connected with the following Medical Societies: 1871-74, the Medical Society, County of Kings, Brooklyn; Pathological Society; Honorary Member New York Pathological Society; New York County Medical Society; Medical Journal Association; Public Health Association and State Medical Society; American Medical Association; Washtenan County Medical Society, Michigan; New Hampshire State Medical Society, President, 1876; Vermont State Medical Society; Connecticut River Valley Medical Society; White Mountain Medical Society.

His principal papers and addresses have been as follows: "Gun-shot Wounds of the Knee-joint;" address, Reuben D. Mussey, M.D., LL.D., address to graduates L. I. C. H., 1871; memorial, David S. Canant, M.D.; eulogy, Nathan Lord, D.D., LL.D.; "Enthusiasm—Condition of Professional Success;" "A Last Act in Surgery," "Five Medical Men Who Lived 100 Years Ago," "The Ethical Relation of Physician and Patient," "First Operation on Record of Removal of Entire Arm—Scapular and Three-fourths of the Clavicle—Recovery," "A Case of Siamese Twins," "A Contribution to the Medical History of New Hampshire," "Month in a Volunteer Camp."

WILLIAM SCHROEDER, M.D.,

Sec. of Historical Committee.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

Medical Director E. S. Bogert (retired), U.S.N., is detached from the Boston yard and ordered home.

Acting Assistant Surgeon George H. R. Gosman, formerly interne at Kings County Hospital, has been appointed Assistant Surgeon U.S.A. and assigned to duty at West Point.

Dr. Richard W. Westbrook moved into his new office at 1145 Dean street the 19th of September.

Dr. J. Finley Bell, a member of the Associated Physicians of Long Island, and well known to many of its members, has removed from East Hampton, L. I., where he practised a number of years, to Englewood, New Jersey.

Dr. J. R. Taylor, who changed his residence last fall from Sag Harbor to Brooklyn, spent part of the summer practising in his former home.

Many physicians have this summer been approached by an affable stranger who knew all about them and their friends. He was put down as either a bunco steerer or recent medical graduate whose face had been entirely forgotten. He was always obliged to introduce himself as Dr. J. Richard Kevin, who had so changed his personal characteristics as to deceive his most intimate friends as well as patients.

Dr. Otto Frischbier announces his engagement, July 2d, to Miss Pauline Zerweck.

Dr. Audley Haslett died July 9th at the Baths of Lucea at the age of sixty.

A number of changes have been made in methods at Kings County Hospital, but none more interesting to see than the daily removal of the whole children's ward to the roof garden during the summer. The trouble of transferring so many beds is no

doubt considerable; but that it has been justified by the results can be attested to by those who have been watching the cheeks gain color and fill out. There has also recently been prepared a kindergarten room adjoining the children's ward, and there will be some one engaged to teach them. These are long steps in advance, and the credit is due, as for so many other improvements, to Dr. J. T. Duryea.

At St. Mary's Hospital they have been following out the same ideas by moving as many beds as possible from the children's ward to the piazza. The thankfulness of the little patients is expressed in their faces without need of words.

Dr. James A. Cooley, secretary of the Nassau Hospital Association, calls attention in a circular-letter to the fact that the Nassau Hospital at Mineola is ready to receive poor patients from the island, in accordance with the provisions of the new State poor law.

Dr. James M. Winfield took possession of his new home at 47 Halsey street the second week in September.

At the meeting of the Medical Society of the County of Kings on September 17th, announcement was made of the gift to the Society of the library of the late Dr. A. J. C. Skene.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK, for the Year 1901. Published by the Society. 1901. VIII., 524 pp., 12 pl. 8vo.

This volume of Transactions is well up to the standard set by former publications of the State Society. Contributions by Brooklyn and Long Island members are as follows: "Treatment of Delirium Tremens," by James P. Warbasse; "Small Hospitals and their Administration," by L. N. Lanehart; "Ectopic Pregnancy," by George MacNaughton, and "Spinal Cocainization," by G. R. Fowler. Transactions of the Society for the years 1807-31 (reprint), 1840-43 (reprint), and from 1868-1898 inclusive, are offered gratuitously to members upon the payment of charges for packing and transportation. Application should be made to the secretary, F. C. Curtis, 17 Washington avenue, Albany, N. Y.

THE JOURNAL OF PHYSICAL THERAPEUTICS: An International Quarterly Review. Edited by W. S. Hedley. American Editor: M. A. Cleaves. London and New York (79 Madison Ave.) Subscription Price: 5s.

We welcome to our exchange list the above periodical, now in its second year of publication. Dr. Margaret A. Cleaves, who has been appointed American Editor, is well known for her researches and contributions in the field of electro-therapeutics. Under her able management American contributors will be well represented. *The Journal of Physical Therapeutics* covers its special field fairly well, and its table of contents is representative of international investigations along this line of treatment.

JOURNAL OF MEDICAL RESEARCH. New Series, Vol. I. No. 1. July, 1901. Edited by Harold C. Ernst, M.D., 688 Boylston Street, Boston, Mass. Subscription Price: \$4.00 per volume.

This new journal, a continuation and enlargement of the *Journal of the Boston Society of Medical Sciences*, will be published from time to time at irregular intervals, each volume to contain about 500 pages. The *Journal* is devoted to the prompt publication of original investigations in medicine, and is supported by the American Association of Pathologists and Bacteriologists, the Boston Society of Medical Sciences, etc. The initial number contains most of the papers read at the Annual Meeting of the American Association of Pathologists and Bacteriologists, in April, 1901, including a valuable monograph by Dr. E. H. Wilson, entitled, "Some Observations in the Biology of the Bacillus of the Pest." Excellence of typography, illustration and scientific value of this first number of nearly 300 pages, leave little to be desired, and we extend to the Editor our congratulations. Published on the same high plane of the July number, the success of the magazine is assured. It is a most valuable addition to American medical journalism.

ATLAS AND EPITOME OF OPHTHALMOSCOPY AND OPHTHALMOSCOPIC DIAGNOSIS. By Prof. Dr. O. Haab, of Zurich. Authorized Translation from the Third Revised and Enlarged German Edition. Edited by G. E. De Schweinitz, A.M., M.D. With 152 Colored Lithographic Illustrations. Philadelphia and London, W. B. Saunders & Co., 1901. 85 pp., 46 1, 85 col. pl. 8vo. Price: Cloth, \$3.00 net.

The fact that another edition of Haab's Atlas has been so soon issued is ample proof that the profession places a high estimate upon this work. Nine new figures of much interest have been added. It can now be said that the lithographs in this edition nearly equal in number and are much superior in quality to the highly expensive atlases which are so considerably made up of "padding."

The present work will be a *vade mecum* even to those who have extensive libraries on the subject of ophthalmology, but those who are not so

fortunate will find this book a veritable *multum in parvo* which will enable them to become familiar with the more important pathologic conditions which are observable by the ophthalmoscope.

JAMES W. INGALLS.

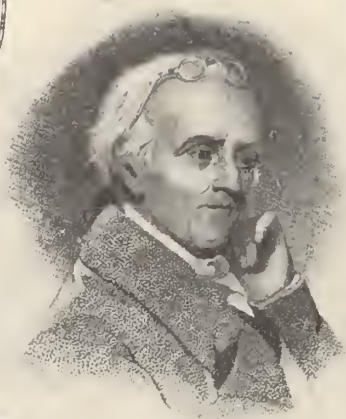
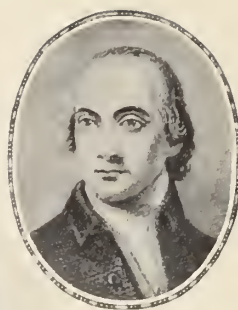
SEXUAL DEBILITY IN MAN. By F. R. Sturgis, M.D. Published by E. B. Treat & Co. Pages, 381.

Until very recent years reputable physicians have taken but a languid interest in studying the topics of Masturbation, Impotence, Spermatorrhœa, etc., and when consulted by the sexual neurasthenic were apt to dismiss his case with a jocular remark, or the statement that his symptoms were purely imaginary.

In consequence of this attitude on the part of regular physicians the quacks and advertising charlatans did a thriving business.

From the form of dedication of this book, "to sexual cripples whose infirmities have in part contributed to the grateful author's support" we should expect the topics to be treated with the utmost frankness and candor and our expectations are borne out by a perusal of the work, which may be commended to the specialist as well as the general practitioner for its clear exposition of the matters discussed.

H. H. MORTON.



SIGNERS DECLARATION OF INDEPENDENCE.

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BENJ. RUSH, M.D., LL.D.

LYMAN HALL.

OLIVER WOLCOTT, M.A., M.D., LL.D.

MATTHEW THORNTON, M.D.

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

EDITOR IN CHIEF:

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VOL. XV, No. 11.
WHOLE No. 167.

BRookLYN, N. Y., NOVEMBER, 1901.

{ Single copies 25 cents
{ \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

OTITIC SINUS PHLEBITIS AND THROMBOSIS.

BY J. E. SHEPPARD, M.D., OF BROOKLYN,
Clinical Professor of Otology, Long Island College Hospital.

Read before the Medical Society of the County of Kings, June 17, 1901.

The otological status of a community, lay as well as medical, may be quite definitely estimated by the more or less general recognition of the important truth conveyed by Sir Thomas Wilde's oft-quoted aphorism, that "when a discharge from the ear exists, we can never tell how, when, or where, it will end, or to what it may lead," *viz.*, the fact that every suppurating ear may threaten life.

Perhaps all, or nearly all, my hearers will be able without difficulty to remember the time when it was considered almost heretical to talk of stopping a running ear. Contrast with this the more recent earnest effort to rob middle ear suppuration of its dangers, first of all by curing it while still uncomplicated, and in the second place the present-day fearless grappling with

the complications which, until within a few years, were considered necessarily fatal.

It is to one of the more frequent results of suppurative middle ear disease, phlebitis and thrombosis of the cerebral sinuses, and more especially of the sigmoid sinus, that I wish to call your attention this evening.

The first description of otitic pyemia seems to have been that of Abercrombie, who in 1829 reported two typical cases, one with, the other without, metastasis, and gave the post-mortem findings. The first fundamental treatise on "Otitic Sinus Phlebitis" was published by Lebert in 1856, and it was he who first diagnosed in the living a suppurative inflammation of the lateral sinus, otitic in origin, with extension to the jugular vein and consecutive pyemia, with metastatic abscesses, which was later confirmed by the autopsy. After this cases were reported more or less fully by Wilde in 1856, Weill (Paris) in 1858, V. Dusch in 1859, Lancereaux and Molthan in 1862, Toynbee in 1863, and so on, with increasing frequency.

Knowing full well the fabled dryness of statistics, I do not at the same time forget that the dry treatment in otology is still *de rigueur*, and do not believe that to recall to your minds a few figures will prove wholly uninteresting.

Frequency of death as a result of ear disease as compared with the total number of deaths, 119 in 38,000—0.3 per cent.

Frequency of death as a result of ear disease as compared with the total number of ear diseases 116 in 81,648 cases—0.14 per cent.

Frequency of deaths in proportion to the total of suppurative ear diseases is from 1.2 per cent. to 2.5 per cent.

Relative frequency of the various otitic brain diseases contrasted with one another: One estimate, sinus phlebitis and pyemia, 35.6 per cent.; brain abscess, 37.4 per cent.; uncomplicated meningitis, 27 per cent. Another series: Sinus phlebitis, 41.4 per cent.; brain abscess, 24.1 per cent.; meningitis, 34.5 per cent.

Frequency of the otitic brain diseases as contrasted with the same diseases of other origin: Out of 56 brain abscesses about one-third arose from the ear; out of 44 cases of sinus phlebitis and thrombosis about two-thirds arose from the ear and temporal bone; while otitic meningitis, as contrasted with that from all other causes, is relatively small. It is a growing belief, in which I personally join, that this proportion does not represent the full status of the ear as an etiological factor in infective

brain diseases, and for two reasons: In the first place, because the connection between the two is often not looked for, and, in the second place, even when looked for, it is in many cases difficult to trace.

Of a large number of cases of sinus disease about 72 per cent. occurred in males, and only 28 per cent. in females.

As to age: From one to ten years, 16.4 per cent.; from eleven to twenty years, 21.8 per cent.; from twenty-one to thirty years, 34.2 per cent.; from thirty-one to forty years, 11.9 per cent.; from forty-one to seventy years, 9.9 per cent.

Sinus disease, as is true of other intra-cranial complications of ear suppuration, occurs oftener on the right side, the difference being 10 per cent., or more, out of a large number.

As to the frequency of location of otitic thrombosis, Hessler gives the following table:

Transverse sinus (lateral and sigmoid)	197
Internal jugular vein	105
Superior petrosal sinus	32
Inferior petrosal sinus	23
Superior longitudinal sinus	11
Cavernous sinus	8
Both cavernous sinuses	10

Etiology and Pathology.—So far as concerns the phlebitis and thrombosis under discussion its cause is middle ear and mastoid disease, and more often chronic than acute, middle ear suppuration. The lining of the mastoid antrum and cells becomes inflamed, softened or eroded, and the spaces occupied by decomposing purulent products swarming with septic organisms, the staphylococcus, streptococcus, or pneumococcus and of these the streptococcus seems shown by experience to be the most virulent. As the inner mastoid cortex softens, the infection may extend directly to the sinus walls, or by means of the formation of a peri-sinuous abscess; or, without softening of the bone, the diploic veins, which empty into the sigmoid sinus, may become thrombosed, and cause its obliteration. In any case, when the sinus is first affected, the endothelium becomes swollen and desquamates, and coagulation takes place. The deposit of fibrin may be limited to one side of the wall (parietal clot), or the whole circumference of the vessel may be involved (obstructing thrombus). The clot breaks down, pus is formed, whence germs

are carried into the general circulation, and metastatic abscesses result. Ulceration of the sinus wall may, or may not take place; if it does, the pus may find its way through the mastoid foramen and form an abscess in the tissues along the posterior margin of the mastoid. The thrombus within the sinus may extend downwards into, or even through, the internal jugular vein; upward into the inferior or superior petrosals, and thence to the cavernous sinuses; or backward to the torcular herophili, thence into the longitudinal sinus, into the opposite transverse or lateral sinus, or even into the jugular vein of the unaffected side. As a not infrequent occurrence may be mentioned the extension of the infection through the floor of the tympanum into the bulb of the internal jugular vein. From the median, or internal, aspect of the sinus may arise purulent basic lepto-meningitis, or cerebellar inflammation with abscess.

As a somewhat rare occurrence may be mentioned the aseptic thrombus which may be absorbed or organized, leaving behind thickening, contraction, or possibly obliteration, of the sinus through a connective tissue organization of the clot. Even more rarely an infected thrombus may, by destruction of the sinus wall, be evacuated through a fistula in the destroyed bone, with escape from disastrous consequences. In the majority of cases, however, if the affected sinus is not operated on, septic sinus thrombosis proves fatal by metastatic abscesses, pyemia, cerebral or cerebellar abscess, or purulent meningitis. The wall of the sinus shows only rarely normal conditions—sometimes much thickened, again greenish-yellow in color, gangrenous, or already perforated. It is often covered with small patches of pus, or it may be pushed away from the bone by a large collection of pus and granulations. The sinus may feel hard and cord-like, or may be soft as a result of the breaking-down process.

With otitic thrombosis of the jugular the glands along it are usually enlarged, and at the base of the skull it is sometimes surrounded by larger or smaller pus collections, which may burrow among other places to the pharynx, and there form a retro-pharyngeal abscess.

Symptomatology.—The symptoms of sinus phlebitis and thrombosis may for convenience sake be grouped under the following four headings:

1. Those due to the mastoid inflammation, which is, as a rule, preliminary to, co-existent with, and causative of, the sinus condition. These are, of course, the symptoms of mastoiditis,

and do not require description here, but which, when present, should always be the occasion for special watchfulness on the part of the surgeon for any of the symptoms in the following groups:

2. *Those of cerebral origin*, under which heading have been mentioned, in reports of cases, headache, vomiting, consciousness retained or impaired, psychic depression, delirium, coma, restlessness, hyperesthesia, paralyses of the opposite side, vertigo, respirations shallow and frequent, constipation, choked disc and optic neuritis.

Headache is present in almost all cases to a greater or less extent; it may be diffuse; it may be, and more often is, limited to the affected side of the head, hemicrania, or may be frontal or occipital, upon the affected side, or may be felt only in the depth of the head about, or in, the ear, and is often made worse by percussion or pressure over the posterior part of the mastoid process.

Vomiting and constipation are two symptoms that may be mentioned together as rather frequently present during the earlier stages of the disease. Körner says "vomiting is rarely absent in the beginning"; others speak of it as frequently present. In my own cases vomiting was present in about 50 per cent., but most of those cases were complicated, thus bearing out Whiting's assertion that it is more apt to be present if meningitis be a complicating condition. As to constipation, it is mentioned by numerous writers as being present early, to be followed later by diarrhea.

Under the heading of *consciousness*, although one of the most careful observers says of it, "that no symptom is more subject to variations," the general concensus of opinion is that it is in by far the greater number of cases retained, and is mostly perfectly clear. This was true of all my uncomplicated cases. In some cases it is diminished, or there may be delirium, sometimes active, or there may be marked psychic depression, or even coma. The next three symptoms mentioned in this group, *restlessness, hyperesthesia, paralyses on opposite side of body*, seem to me by no means indicative of the condition under discussion, being to my mind much more suggestive of meningeal irritation or of a localized pus collection.

Vertigo has been found in a few uncomplicated cases, but is much oftener present when there is a co-existing meningitis or cerebellar abscess.

Choked disc and optic neuritis, while sometimes seen, are not characteristic, and are more frequent in meningitis and abscess.

3. *Those externally perceivable*, and due to (a) venous obstruction of the sinus and over-distension of the superficial veins, together with (b) inflammation of the veins communicating with the sinus. Under the former of these subdivisions may be mentioned Griesinger's symptom, Gerhardt's symptom, emptiness of the jugular vein below the thrombus, edema of the posterior mastoid region and posterior cervical triangle, of the face, of the anterior neck region, and symptoms due to pressure on the cranial nerves whose avenue of exit is the jugular foramen; to which may be added for subdivision b simply tenderness over the regions where edema is prone to occur, and the diagnostically important hard tender cord-like feeling along the anterior margin of the sterno-mastoid muscle, over the course of the internal jugular vein.

Griesinger's symptom consists of a circumscribed painful edema of the region of exit of the mastoid emissary vein, about the posterior edge of the mastoid process, and when present is very suggestive.

Gerhardt's symptom of relative greater fulness of the external jugular on the sound side as compared with that of the affected side, is not always easy to elicit, and since it is dependent upon the extent of the thrombus, the exact opposite may be true, as shown by a case of Bürkners; I would, therefore, in spite of the very general prominence given to this symptom by writers on the subject, be inclined to attach but minor importance to it.

Emptiness of the internal jugular vein below the thrombus must, on account of the difficulty attending its demonstration, be considered a theoretical rather than a practical symptom.

Edema of the upper part of the posterior cervical triangle, while present in by no means all cases, still when well marked, especially if attended by tenderness in this region, indicates very strongly phlebitis of the deep veins of the neck, the condyloid emissary and vertebral veins, and obstruction of a great blood channel, and, according to Whiting, usually implies that the thrombus has already extended into the jugular bulb, and that infective dissemination has begun.

Edema of the face and eyelid, without exophthalmus, would indicate thrombus in the internal jugular, which has extended to the facial vein.

Edema along the anterior border of the sterno-mastoid muscle

more often means enlargement of the cervical glands, while tenderness in this region with an appreciable hard tender cord-like feeling along the course of the jugular, would, along with the other symptoms, be absolutely pathognomonic of sinus thrombosis with extension to the jugular.

The other symptoms in this group are those due to pressure upon the vagus, the spinal accessory, and the glosso-pharyngeal nerves as they make their exit from the cranial cavity through the jugular foramen, and of these those most frequently noted are hoarseness, aphonia, shortness of breath, death from respiratory paralysis, slowing of pulse, spasm of the sterno-mastoid muscle, and paralysis of the muscles of deglutition.

4. *Pyemia and Septic Symptoms*.—Most cases lead to pyemic infection of the whole system, the focus only occasionally remaining shut out from the general circulation. Of all the symptoms of otitic sinus phlebitis, the most characteristic are the pyemic fever, the chills and rapidly fluctuating temperature, the former lasting from one-fourth to one-half an hour up to one or two hours, the latter rising abruptly to 104°, 105°, or 106° F., and rapidly falling to normal, sometimes a little above, sometimes below, followed by free sweating, with or without any periodicity. While this is the type, there are variations to all possible degrees. Sometimes there are no chills—at times the temperature intermits, at times only remits, and again, especially in children, remains continuously high and without chills; or, again, as a recent case of mine has taught me, a case may run its course with neither chill nor elevation of temperature. The pulse usually varies with the temperature. The spleen is almost always, perhaps always, enlarged. The tongue is usually heavily coated and dry, and the appetite lost, while at this time general asthenia and emaciation, as a rule, develop rapidly. Diarrhea is apt at this stage to displace the earlier constipation, and has at times given rise to an error in diagnosis, several cases having been regarded as typhoid fever, an error that can hardly be considered as excusable. The skin has often been described as slightly jaundiced, although an ashen hue would, from my experience, be a more accurate term. With the disintegration of the thrombus, infective particles are taken into the general circulation and metastases occur, more often when the jugular is involved, and most often into the lungs, although other parts of the body, especially the joints and muscles, are not exempt. However, the pulmonary emboli are not all infected, in which case, though this is rare, the

result may be infarct, not abscess. The metastatic lung abscesses are, as a rule, multiple, and vary from miliary up to walnut size. The large ones are unusual, because, as a rule, they lodge in the periphery of the lung, and with slight extension break into the pleural cavity and cause death from purulent pleurisy or from pyo-pneumothorax. Because of their size they often escape observation, and a large number of them together may give the symptoms of a diffuse bronchial catarrh. The characteristic sputum is not often found.

Körner, Eulenstein, and others, recognize a second form of pyemia, which develops as an osteo-phlebitis, and not from the sinus. As features of this form Körner mentions that, in spite of the characteristic temperature curve, the chills are more often absent, or the fever may be of a rather high remittent type. Metastases are less frequent and occur only exceptionally in the lungs, much more often in the joints, muscles, and subcutaneous connective tissue. It has its origin much more often in acute, than in chronic, middle ear suppuration, as contrasted with sinus pyemia.

Symptoms Peculiar to Thrombosis of the Other Venous Sinuses.—According to Körner, thrombosis of one or both petrosals causes no local symptoms, the symptoms of other authors, epistaxis, epileptiform attacks, diffuse edematous swelling of the temporal region, etc., being dismissed by him as theoretical.

If the superior longitudinal sinus become obstructed, serious symptoms develop, such as epileptiform or apoplectic attacks, together with swelling and tortuosity of those veins which are found between the anterior fontanelle and the temporal and auricular regions, and sometimes cyanosis of the upper part of the face, copious perspiration of the same region, and, especially in children, epistaxis. With involvement of the cavernous sinus the symptoms are much more definite, owing to the stasis of its venous blood and to pressure on the adjacent third and sixth nerves, which evidence themselves, the former in exophthalmus, temporary blindness from edema of the retina, intolerance of light, and swelling of the forehead, eyelids and nose, the latter in paralysis of accommodation, dilatation of pupil, ptosis, and squint, which may be internal or outward and downward, according to the nerve pressed upon. However, only one symptom may be present, and sometimes they are all absent.

In occasional cases of otitic phlebitis of the sinuses about the temporal bone, the picture resembles more that of septic poison-

ing, with high continued fever, delirium, and resultant septic endocarditis, endocardial ecchymoses, muscular hemorrhages, retinitis, septic nephritis, and death as from pyemic intoxication.

Complications.—Under this heading may be simply mentioned without description the rather frequent extra-dural abscess, purulent leptomeningitis, and otitic brain abscess as the conditions which, outside of the primary disease of the temporal bone and its cause, go along with sinus phlebitis and its metastases. Extra-dural abscess forms very often the means of transmission from the bone to the sinus. Leptomeningitis and brain abscess may just as well arise from the diseased bone directly, along with the sinus phlebitis, as through its aid.

Cervical abscess may arise from venous thrombosis in the deeper parts of the upper third of the posterior cervical triangle, in connection with the deep posterior cervical plexus, the vertebral plexus, and the occipital veins, or under the sterno-mastoid muscle, in the course of the internal jugular vein, always under the deep cervical fascia, and in some cases in direct communication with the disintegrated thrombus in the interior of the veins.

Duration, Course, Prognosis.—I feel that we can do no better than to adopt Whiting's description of the course of the disease, although his first stage is almost impossible to recognize unless the sinus be investigated during a mastoid operation. He says: "The course of sigmoid sinus thrombosis may be conveniently designated for purposes of clinical classification as comprising three stages, characterized by local and systemic manifestations; the anatomical appearances of the sinus wall, the pathological changes in the clot, and the signs of circulatory obstruction may be denominated as *local factors*; while rapid and excessive fluctuations of temperature, frequently repeated rigors, peripheral or central metastases, etc., embrace the essential *systemic symptoms*.

"First Stage.—Characterized by the presence of a thrombus, parietal or complete (chiefly composed of fibrin, red blood cells, exfoliated endothelium, leucocytes, and homogeneous protoplasmic cells), not having undergone disintegration, and accompanied by slight or moderate pyrexia, rigors being usually insignificant or absent.

"Second Stage.—Characterized by the presence of a thrombus, parietal or complete, which has undergone disintegration with resulting systemic absorption, with frequent rigors and pronounced septic-pyemic fluctuations of temperature.

"Third Stage.—Characterized by the presence of a thrombus,

parietal or complete, which has undergone disintegration with systemic absorption, accompanied by rigors, rapid and great fluctuations of temperature, and central or peripheral embolic metastases, terminating usually in septic pneumonia, enteritis or meningitis."

The *duration* depends upon the severity of the infection, as well as upon the number and kind of metastases. It may be rapid, death resulting in a few days from the paralyzing influence of the septic poison, or more commonly a patient will last from two to four weeks, death being then due to pyemia, and metastatic abscesses in the lungs, liver, kidneys, or the brain itself. Or, again, a case may run a more chronic course, with several remissions or intermissions, lasting over a period of a few months, and death from pyemia or exhaustion.

Prognosis.—Otitic sinus phlebitis results, as a rule, in death: (1) From pyemic metastases, especially through pyopneumothorax, resulting from rupture of lung abscesses. (2) From pyemia or general septic intoxication. (3) From complicating meningitis or brain abscess. (4) From sinus hemorrhage. (5) From paralysis of the vagus. Only a few well-established cases of spontaneous recovery are on record. Until 1888 the natural tendency of the disease was not successfully interfered with. Since that time, and coincident with the advance in otology and in aural surgery which has led to the early recognition and operative cure of the disease, the prognosis has steadily improved, Whiting's "Compilation" showing, out of 139 operations, ninety-five recoveries, or 68 per cent. Still, while the prognosis is to be regarded as always serious, no one will doubt the possibility of very materially improving this percentage by a more comprehensive acquaintance on the part of the profession as a whole with the symptomatology, which will result in earlier and more accurate diagnosis, together with improved technic in the performance of the needful operative steps. At the present time we feel that the prognosis in a given case, if recognized in the first stage, is almost uniformly good; that when further advanced, with existing pyemic manifestations, but without metastases, there is still an excellent chance for the recovery of the patient; and that, even under the much worse conditions existing after metastases have occurred, and the phlebitis has extended to the internal jugular vein, a small percentage of cases recover. A case is therefore absolutely hopeless only when *in articulo*.

Diagnosis.—The diagnosis of otitic pyemia depends on the

presence of the signs of pyemia in general, associated with acute or chronic suppurative disease of the middle ear, or the bone surrounding it. The addition of certain pyemic manifestations to any of the four following ear conditions should be considered strongly suggestive: (1) A more or less profuse chronic otorrhea which has rather suddenly lessened or ceased. (2) A chronic middle-ear suppuration, with such scanty secretion as perhaps to be unknown even to the patient, and discoverable only by ocular inspection under illumination of the external canal and tympanum. (3) An acute middle-ear suppuration attended with more or less unmistakable evidences of mastoid involvement. (4) An acute middle-ear suppuration in which the discharge has gradually ceased from two weeks to two or three months previously, attended with, and followed by, more or less obscure and slowly lessening symptoms of mastoiditis. I wish to call especial attention to this last condition, as describing two of my cases in which sinus disease developed. When, therefore, to any of these conditions be added rigors with rapidly fluctuating temperature, sweating, localized headache, vomiting, especially if associated with any of the evidences of venous obstruction, or the tender cord-like feeling in the jugular region, and a rapidly developing asthenia, the diagnosis is unmistakable, particularly if there be added thereto metastases. Often, however, only one or two symptoms may develop in addition to the suppurative ear disease, and in the absence of the pyemic temperature curve, as sometimes occurs, the diagnosis is attended with the greatest difficulty, and may be impossible. I can only urge my hearers to watch such cases in a suspicious frame of mind, and to be prepared to make even slight irregularity of symptoms a reason for immediate thorough investigation.

Differential Diagnosis.—Since the pyrexia and constitutional disturbance are frequently attributed to other diseases, it seems perhaps necessary to devote a moment to the most frequent of these, typhoid fever, malaria, acute rheumatism, ulcerative endocarditis, acute tuberculosis, and meningitis.

Typhoid fever sometimes, though rarely, commences with rigors; the temperature rises by means of higher, somewhat remitting steps, for several days, never reaching 104° on the first day, and never descending to normal on any evening during the first week. As a rule, its onset is not sudden. If the blood is examined it may be found to answer to Widal's reaction, and not to show leucocytosis, as is often true of sinus disease. *In malaria*,

the chills are more regular in their periodicity, and the therapeutic test with quinine is usually quite convincing, while an examination of the blood may reveal the characteristic plasmodium, as contrasted with the leucocytes, and sometimes streptococci, of pyemia.

Acute rheumatism is seldom accompanied by rigors, the temperature is more steadily high, and the number of joints affected in succession is larger.

Acute ulcerative endocarditis resembles otitic pyemia in many of its aspects. The metastases affect chiefly the lungs, kidneys, spleen, liver, skin and brain, the emboli in the latter organ affecting oftener the left hemisphere, and hence producing right-sided paralyses, which rapidly pass away. The heart action, and heart sounds, and absence of ear disease, are important factors in the diagnosis.

Acute tuberculosis is sometimes attended with chills, but there is generally evidence of pulmonary involvement, and tubercle bacilli may be detected in the sputum. The attack has usually been preceded by gradual loss of health, and wasting of tissue.

There is, of course, no reason why any of these conditions should not occur in a person suffering from middle-ear suppuration, but there need usually be no great difficulty in differentiating as to the origin of the symptoms.

Having thus traced the disturbance of general health to the acute or chronic disease of the ear, we have next to consider the diagnosis of otitic pyemia as contrasted with that of the other possible dangerous sequelæ, *viz.*, extra-dural abscess, purulent meningitis, and cerebral or cerebellar abscess, and its recognition when combined with one or more of them.

Extra-dural abscess may run its course almost without symptoms, certainly without distinctive symptoms, and is most frequently found unsuspected when opening the mastoid bone, and for some reason extending the operation to the dura. If it opens by a fistula into the middle ear, through which it empties at intervals, it would then be manifested by the occasional profuse discharge of pus, and, when filling up, be accompanied by unilateral and diffuse headache, tenderness to pressure and to percussion, stupor, choked disc, slowing of pulse, stiffness of neck, disturbance of speech, and crossed paralyses.

Meningitis is usually characterized by the early onset of delirium, violent headache, continued high temperature, rapid pulse, vomiting and obstinate constipation, with a tendency to strabis-

mus, and retraction of the head, as contrasted with the chills and rapidly oscillating temperature, retained consciousness, and late diarrhea of pyemia.

In abscess of the cerebrum or cerebellum there is at the outset a rise of temperature, and possibly a rigor; but this subsides and the abscess remains latent until, after an interval, there supervene headache, slow cerebation, slowing of pulse and respiration, and lowering of temperature. There is often vomiting, constipation, and usually great emaciation. In temporo-sphenoidal abscess there may be divergent strabismus from pressure on the third nerve, and weakness of the arm and leg on the opposite side of the body. In cerebellar abscess the weakness is in the limbs of the affected side.

Even in the complicated cases the diagnosis of otitic pyemia is usually fairly obvious. When *otitic pyemia*, with or without thrombosis of the sinus, is present *in combination* with *cerebral abscess*, the temperature is, as a rule, that of the pyemia, but the pulse may be disproportionately slow. When *combined with meningitis* the mental disturbance is much greater than when the pyemia exists alone, and lumbar puncture will demonstrate the presence or absence of purulent meningitis. The data obtained from ophthalmoscopic examination are somewhat inconclusive as regards the presence of cerebral or cerebellar abscess. A dilatation of the retinal veins, with swelling of the disc, is strongly suggestive of thrombosed sinus, and when it is unilateral it suggests that the disease may possibly have extended to the cavernous sinus. As has been said before, the crowning signs of otitic pyemia are the occurrence of metastatic suppuration in other parts of the body, though these may be so minute as to give no physical signs.

Finally, just a word as to the diagnosis between the *thrombotic* and *non-thrombotic forms* of *otitic pyemia*. When the pyemia is the result of a chronic middle ear suppuration of more than one year's standing, and especially if there are metastases to the lung or pleura, it is practically certain that there is a thrombo-phlebitis of one or other of the sinuses. Local evidences of involvement of the venous channels help to make the matter clear. Fulness above the orbit, with edema and distention of the contents of this cavity, and dilatation of the retinal veins, would indicate plugging of the cavernous sinus. Tenderness, or the presence of an elongated swelling along the course of the internal jugular vein, would indicate inflammation of this

vessel, or at least an inflamed condition of the overlying lymphatic glands. Occasionally the inflamed and suppurating vein may form a fluctuating swelling. Tenderness behind the mastoid region would suggest infiltration of the condylar or vertebral veins. When on the other hand the pyemia is due to an *acute* middle ear suppuration, and the metastases affect rather the joints or the greater circulation, there is a probability that it has not been preceded by a thrombo-phlebitis of the great sinuses, and that it is of the non-thrombotic form.

Treatment. In 1880 Zaufal first suggested the possibility of ligating the jugular and emptying a thrombosed lateral sinus, and in 1884 made an attempt to do so, but was unsuccessful. It was reserved for Arbuthnot Lane in 1888 to first successfully treat by operation a case of otitic sinus thrombosis by tying off the internal jugular vein and removing an infective clot from within the sinus. Beginning then with the first definite statement that otitic sinus phlebitis must be operated as soon as recognized, we seem of necessity plunged at once into a consideration of the mooted question as to whether or not the first step of the operation shall be ligation of the internal jugular vein. As yet there certainly cannot be said to be any uniformity of opinion upon the subject. To my mind the stronger reasons seem to be with those who argue in the affirmative, and I would say that, from the three-fold view-points of *a priori* reasoning, statistics, and my own experience, at any time after the initial chill, it would be a safe general rule, and good conservative surgery, to ligate the jugular. To this, as a rule, I would admit a considerable percentage of exceptions; many cases have recovered without ligation, showing that it is sometimes superfluous; at the same time the advantage of having the main entrance to the general circulation closed against infection cannot be gainsaid. I know of no statistics on the subject which have been so carefully prepared as those which Viereck presented to last year's meeting of the German Otological Society, and from which he has carefully eliminated those cases in which ligation could not possibly have changed the result. After doing this he is reduced to 94 cases of pure sinus thrombosis, of which 40 were ligated. Of these 6 died of pyemia (15 per cent.); 6 others had a prolonged recovery with metastases (15 per cent.); in 70 per cent. healing was ideal. Of the 54 not ligated, 13 died of pyemia (24 per cent.); 16 more had a prolonged convalescence,

11 with metastases (53.7 per cent. had pyemia and metastases); ideal healing in only 46.3 per cent.

In cases then in which the diagnosis is reasonably certain I would recommend as a general rule that the internal jugular be tied off well down in the neck, and high up toward the bulb, (if necessary also the facial vein), and the intermediate portion of the vein resected. Then proceed to perform the regular mastoid operation, only in addition, from the center of the usual first incision make a second running backward one and a half to two inches toward the occipital protuberance, then elevate the flaps and open the antrum and cells as usual; after which the roof of the antrum and the region around the sigmoid sinus must be investigated with especial care, when, if there exist a carious aperture, an exposed dura, or sigmoid sinus, or granulation tissue sprouting therefrom, the line of further procedure is clear. If there be no such indication, it is not usually difficult to recognize the bulging convexity of the sigmoid groove. In the former case, with a rongeur, starting from the point where the infection has penetrated the bone, the outer bony covering of the sinus can be quickly removed. In the latter case—and using a sharp curette—the bone can be expeditiously penetrated, beginning at the posterior part of the antrum and working backward, until a sufficient opening is made to begin using the rongeur, when the anterior knee of the sinus will soon come into view, the average position of which is about at the level of the supra-meatal spine, and from one-half to two-thirds of an inch posterior to it. Expose the sinus downward to the outer edge of the jugular foramen, avoiding carefully the facial canal in front and the posterior condyloid foramen behind, and backward until from $1\frac{1}{2}$ to 2 inches of the sinus wall has been exposed. As to how much of the sinus must be uncovered, the size of the clot must in a measure determine, but, as Whiting says, “by so much as the sinus is exposed less than two inches, by so much are the mechanical obstacles to the operation multiplied.” The sinus wall should now be carefully inspected and palpated to determine as accurately as possible the location and size of the contained thrombus. This may be parietal or completely obstructing, and may be limited to the vicinity of the knee, or may extend into the bulb, or even into the jugular. When a clot is present the characteristic lustre and smoothness are generally lost, even if the unhealthy greenish-yellow color, previously spoken of, be not found; granulations may be present;

in passing the finger along the sinus wall the roughened area of the clot can usually be appreciated, as well as the doughy consistence of a recent clot, or the firm resisting sensation of one which has been longer present. The presence or absence of pulsation is not materially significant. Before proceeding to open the vessel wall the wound should be thoroughly cleansed and irrigated with a solution of bichloride of mercury ($1/5000$) or with 95 per cent. alcohol.

Since hemorrhage may come from one or both directions, it is well to be fortified with gauze tampons ready to make immediate pressure, and then with a bistoury make an opening sufficiently large, say one-half to one inch in length, to permit of the proper curetting measures for removal of the clot, taking care not to go so deeply as to injure the inner wall of the sinus. If there is no bleeding we may then proceed with a delicate curette to remove the thrombus, working first in the direction of the torcular, until a free flow of blood be established, when it should be stopped by firm pressure of the tampon *upon*, not *into*, the vessel. In the same manner the clot is removed as thoroughly as possible from the direction of the bulb, and, if bleeding be established, a gauze tampon may be pressed with moderate firmness *into* the vessel toward the jugular foramen. The visceral wall of the sinus should then be carefully investigated with a probe to determine if there is a fistulous tract leading to a deeper collection of pus in the cerebellum or occipital lobes. Again irrigate thoroughly with bichloride solution or with alcohol, dust with iodoform and boric acid (1:4), pack the wound with some form of antiseptic gauze and cover with cotton and bandage. If no untoward symptoms develop, the dressing need not be changed for from three to five days, although a daily renewal of the bandage and outer cotton adds materially to the patient's comfort.

If the shock is very pronounced during or after the operation, beside the usual stimulation with strychnia, nitro-glycerin, digitalis, etc., the patient's condition may be quickly helped by throwing into the bowel one to two pints of normal salt solution at a temperature of 110° to 115° , or in case of need the intravenous injection of from one-half to one pint of the same at a temperature of from 105° to 108° . I have purposely refrained from speaking of the aspirating needle as an aid to diagnosis in these cases, because the evidence given by it is so often un-

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satisfying or even misleading that I have practically abandoned its use.

If after complete evacuation of all the sources of infection that can be found, septicemic symptoms continue, a further resource that may be tried is the hypodermic injection of the antistreptococcic serum, which has, in one case that came under my observation, seemed to have some controlling influence.

The therapy of pyemia from osteo-phlebitis has to do before all else with the removal of the causal disease in the temporal bone, of which all should be removed that is diseased.

CASES.

CASE I.—*Acute Middle Ear Suppuration; Mastoiditis; Perisinuous Abscess; Sinus Phlebitis and Thrombosis; Intradural Abscess; Death; Autopsy.*

Robert D., aged 10½ years, was first seen by me January 6, 1900, when the following history was elicited: On the 8th of December he was taken with a right-sided earache, followed after a few hours by discharge, and within three or four days by pain, tenderness and swelling over the mastoid, which, after remaining about a week, gradually subsided. Following the subsidence of these symptoms he seemed for about a week in good condition and was out, and about to return to school, when, eight days before I saw him, he began to complain of headache (much of it frontal), vomited frequently, and became rapidly weak, these symptoms continuing until I saw him. Dr. Browning, who was called in the day before, reported moderate choking of both discs, pupils responsive, and gait rather uncertain. I found the mastoid prominent, and undoubtedly tender along the posterior margin.

The diagnosis arrived at was intra-cranial abscess, probably in the occipital lobes or cerebellum, and operation was immediately undertaken. The mastoid was opened by means of a large burr, so as to avoid the concussion of hammer and chisel, the opening being rapidly enlarged with a rongeur, when it was soon found that the pus had perforated the posterior wall of the mastoid antrum, and extended posteriorly where the bone was extensively diseased. Some pus and granulations were found over the outer wall of the sinus, which itself was unhealthy-looking, having a dirty greenish-yellow color, was not pulsating,

and was very tense. As a routine matter, a syringe was inserted, resulting in a dry tap, and the wall was incised, when a clot was found, in parts organizing, in parts breaking down. Toward the torcular this was removed until a free flow of blood was obtained. Although the clot was removed as thoroughly as possible from below, no active return flow could be started, and as the child's condition was at this stage decidedly poor, it seemed unwise to prolong the operation sufficiently to tie off the jugular, so the wound was cleansed with alcohol and closed. During the three following days there was considerable headache, mostly frontal and extending to the vertex, no vomiting, temperature ranging between 99° and 100° , and pulse from 72 to 100, and a fair amount of nourishment taken. During the following three days the symptoms indicated more and more that there was still a collection of pus unrelieved, and he was again anesthetized and a thorough investigation made of the cerebellum and so far as possible of the occipital lobes. This effort failed to locate the abscess, and two days later death ensued. Autopsy by Dr. A. Murray showed nothing of interest beyond the intra-dural collection of pus in the middle cerebral fossa, which had not been found during life, and which there would seem to have been no means of locating, since it was utterly impossible, even post-mortem, to trace the path followed by the infection.

Remarks.—The case should, of course, have been operated during the time the mastoid symptoms were so evident, and when the family physician wished it done, but this course was negatived, and, I blush to say it, by a specialist who saw the case at that time. The history of the case is weak in that no temperature record was kept previous to operation, but the symptoms during the few days before operation, and at that time (when I first saw him) indicated intra-cranial abscess, with the exception possibly of the tenderness along the posterior mastoid margin, and this has not infrequently been found due to extra-dural abscess, so there would seem at that time to have been no basis for a diagnosis of sinus disease.

CASE II.—*Acute Middle Ear Suppuration; Mastoiditis; Sinus Phlebitis and Thrombosis; Operation; Recovery.*

Lulu D., aged 10 years, was first seen by me February 21, 1900, and gave the following history, having been treated during

the previous ten days for intermittent or remittent fever. On January 10th she was taken with German measles, during which, for a few days, she complained of earache; this, without discharging, seemed to get entirely well. About February 10th she was seized with a severe cold in the head and commenced at once to have earache, followed almost immediately by diffuse headache and vomiting, with chilly feelings, and then chills with high temperature (102° to 105°) with profuse sweating, which with the vomiting and headache, continued until I saw her on the 21st, when there was great deafness in, and profuse discharge from, both ears, with moderate mastoid tenderness on both sides. The symptoms being more marked on the left side, a diagnosis of sinus phlebitis and thrombosis on that side was made, and prompt operation recommended. This was done the following day, February 22d. Within the mastoid were found a considerable amount of pus, granulations and diseased bone; a small portion of the inner cortex was gone, so that uncovering of the sinus with a rongeur was quickly done, when it was found to have an unhealthy color, and on opening to be filled with an infected thrombus which was breaking down. This extended into the bulb and well back toward the torcular; in this latter direction it was thoroughly removed and a free flow of blood established; but while all was removed as far as possible downward, no return flow of blood could be obtained. On this account the internal jugular was quickly exposed, two ligatures thrown about it and the vein tied between them; the upper wound was cleansed with alcohol and packed; the lower wound was held together by plaster and was not sutured. Recovery was uneventful, and the patient was discharged, entirely well, June 18th. At this time the left side of the face was distinctly larger than the right.

Remarks.—This would seem to have been a case in which the diagnosis was unattended with special difficulties, and yet the child, though for several days before I saw her, attended by a physician who has for a number of years done special work, was thought to have some irregular form of malaria. Although the history is somewhat lacking, I should be inclined to think the trouble started with the German measles in January, and to have gone along as one of those obscure and unrecognized mastoid inflammations until the outbreak one month later, which indicated the perforation of the inner mastoid cortex and the beginning of the sinus disease. There was a question for some

days as to whether or not the other mastoid would have to be opened.

This is the second case in which I have seen, following ligation of the internal jugular vein, a distinct enlargement of the face on the same side during the months following the operation. I have as yet seen no mention of this occurrence, and hence no explanation, but I should suppose it can only be due to alteration in the nutrition of the parts. The two sides of the face are becoming slowly more nearly equal in the other case, which showed this symptom, and which was operated in May, 1898. This is also at the present time true of this case.

CASE III.—*Acute Middle Ear Suppuration; Mastoiditis; Phlebitis and Thrombosis of the Sigmoid Sinus; Operation; Death.*

Mr. S., aged 19 years, was first seen by me on the morning of May 30, 1900, when I obtained the following history, together with the temperature chart which is shown herewith: Late in March he was taken with pain in the right ear, followed by discharge, which after two or three weeks gradually ceased. The pain lessened, but did *not* entirely leave him for any length of time, and for a considerable time there was moderate mastoid tenderness, and a more or less constant pulsating tinnitus, altogether a group of symptoms quite sufficient to arouse a suspicion that a deep-seated mastoid inflammation was progressing, especially when they continued until about May 1, when there were added thereto slight feverishness, chilly sensations and a considerable degree of headache. (Permit me in passing to call attention to this as undoubtedly the first stage of sinus development.) The rest of the history appears on the temperature chart, showing a continued high temperature during May 5th, 6th, and 7th, and on the 8th the first distinct chill, followed by one, two and three hard chills daily, and the typical pyemic oscillating temperature, with free sweating, until, when I saw him, on May 30th, his condition was most grave, with a temperature of 104° to 106° , and a pulse of 120 to 140; in fact, death had been fully expected at any time during the previous three or four days. Consciousness had been perfectly clear throughout. In this case the diagnosis, when I saw him, was perfectly clear, and it was evident that without operation there was no chance whatever for recovery; and on this basis, even though the patient was *in extremis*, it seemed to me wise to give him the only pos-

sible chance he had, and I accordingly recommended operation, which was done about four hours later. In the meantime his condition was to be improved as much as possible by injections of normal salt solution in the bowel, two of which were given.

Nitrous oxide was chosen as the anesthetic. As the first step in the operation, the internal jugular was cut down upon and expeditiously tied in two places and cut between. My reason for doing this first was the fear that pus must be almost ready to make its way downward into the general circulation, and that manipulations above might be amply sufficient to hasten this process, and that the fear was well grounded was proven by a gush of pus from the direction of the bulb while the jugular was being tied. The mastoid process was then opened, soft bone found in the region of the sinus, which was quickly opened and emptied of a considerable quantity of broken-down clot and pus, and the wound was being washed out preparatory to packing it, when the patient suddenly ceased to breathe and died in spite of every effort at resuscitation.

Remarks.—This case seems to me to emphasize in an especial manner the need, spoken of in the paper, for a more extended knowledge on the part of the profession as a whole with the symptomatology of sinus phlebitis and thrombosis, for, with skilled medical attendants in charge, as was the case, I do not hesitate to say that a diagnosis should have been easily possible at any time after the 8th of May, at which time the case, as shown by the subsequent course of the disease, must have offered an exceptionally favorable opportunity for successful operation. I present herewith what I consider a uniquely typical temperature chart of the condition under discussion; I include with it the notes and record kept by the patient himself during the five days preceding the beginning of the chart:

APRIL 30, 1900.

10 A.M.	98.3°
12 M.	98.1°
2 P.M.	99.6°
3 P.M.	99.7°
6 P.M.	99.8°
9 P.M.	100°

Sweat freely during night.

MAY 1, 1900.

8 A.M. 98.8°
 11 A.M. 98.8° Pulse 90.
 2 P.M. 99.4° Severe neuralgia.
 5 P.M. 100.3° Severe neuralgia.
 8 P.M. 99.4° Less neuralgia.
 No sweating during night.

MAY 2, 1900.

8 A.M. 99.5° Slight neuralgia.
 10 A.M. 98.7° Slight neuralgia.
 11 A.M. 98.6° Slight neuralgia.
 12.30 P.M. 99° Increased neuralgia.
 2 P.M. 99.2° Neuralgia.
 7 P.M. 99.2° Neuralgia; chilly feeling.
 9 P.M. 99.4° Slight neuralgia; pulse 84.
 Neuralgia during night. Sweat, and did not sleep well.

MAY 3, 1900.

8 A.M. 98.5° Slight neuralgia; pulse 76.
 11 A.M. 98.5° Very sleepy; pulse 90.
 2.30 P.M. 98.6° Pulse 80; fierce neuralgia.
 3 P.M. 99° Pulse 83; severe neuralgia.
 6 P.M. 99.6° Pulse 96; less neuralgia.
 9 P.M. 98.2° Pulse 84.
 Sweat during night.

MAY 4, 1900.

8 A.M. 98.8° Neuralgia in right eye.
 10 A.M. 99.2° Neuralgia in right eye; pulse 95.
 11 A.M. 99.2° Neuralgia increased; pulse 92.

CASE IV.—*Acute Middle Ear Suppuration; Mastoiditis; Sinus Phlebitis and Thrombosis; Two Cerebellar Abscesses; Operation; Death; Autopsy.*

Frank D., aged 37 years, white, was admitted to my service at the Brooklyn Hospital, April 19, 1901. Had been a hard

drinker and smoker, but without special previous illnesses. About four months ago he was hit in the head (frontal region) with a pitchfork. Three months ago began to have pain in the right ear, followed one week later by a discharge of pus from the same ear. This continued about three weeks, and was accompanied by loud pulsating tinnitus. About four weeks ago began to have pain in the head, at first diffuse, later referred to the occipital region. About the same time the patient says there was swelling behind the right ear, which for a week was very tender, and then disappeared under the use of hot poultices. On admission he complained of pain chiefly in the back of the head, sometimes frontal, and greatly aggravated by straining at stool. He sits with his head in his hands, and says the whole head feels sore. He is somewhat deaf, and answers questions slowly. There are tender points in various locations, but chiefly behind and below the ears. A scar in forehead. Pupils equal and normally responsive. Eye-grounds normal. Reflexes retained. Tongue coated thickly, broad, slightly furrowed, and trembling. Heart, lungs and kidneys normal. Blood shows moderate leucocytosis (1 white blood corpuscle to 700 red). Temperature for three days slightly subnormal. Pulse 48 to 72. A diagnosis of cerebellar abscess was made and concurred in by Dr. Browning, and operation was undertaken April 23d. After going through the thickest and hardest skull ever encountered by me, the dura was exposed, and, to my great amazement, a small abscess in the sigmoid sinus was opened, with the escape of possibly a half drachm of pus. I speak of the surprise, because there had not been one single symptom to arouse suspicion of sinus inflammation. After emptying this abscess the sinus toward the bulb was found to be entirely occluded by what must have been organized blood clot, looking in the specimen almost like cartilage; toward the torcular the clot was not so firmly organized, although it was only after considerable manipulation that a free flow of blood was established. Although we had started in with the idea that we had to deal with a cerebellar abscess, the finding of this abscess within the sinus led me to postpone further operating to learn what, if any, would be the effect of having the sinus trouble eliminated. Three days later, April 26th, the previous operation having evidenced itself only by a slight lessening of the symptoms of intra-cranial pressure, I determined to continue my search for a deeper collection of pus. The patient was again anesthetized, and after thorough

cleansing of the wound the first introduction of the needle brought pus, greenish-yellow in color, and about two drachms in amount; with the needle as a guide the abscess was opened and a gauze drain introduced, consisting of five or six strips each one-half inch to three-quarters inch wide, and rolled together with iodoform and boric acid powder (1:4). After this the patient's condition improved somewhat, the pulse coming up from 60 and 65 to 85 and 90, and there was an improved mental condition, the patient having fallen into a stuporous state during the two hours previous to the former operation. This seemingly improved condition continued until the morning of the 28th—two days later—when, without any warning, the patient died, death being due, so far as could be determined, to respiratory failure.

Autopsy by Dr. Cochrane, about two hours later.

Dura normal, with the exception of a small area situated over the anterior part of the right half of the cerebellum. The area thickened was the size of a quarter dollar. Abscess of cerebellum, two in number, both situated in the right side anteriorly. The more posterior one was free from pus, having been evacuated before death. The anterior one contained pus and had not been opened. The cavity of the evacuated abscess was the size of an English walnut; that of the pus-containing cavity was the size of a pecan nut, and contained about two drachms of pus of pure streptococcus culture. (This was the character also of the pus in the sinus and in the abscess that was opened.) Sinuses: Right lateral completely filled with organized blood clot; longitudinal sinus also contained organized blood clot.

Remarks.—This case illustrates the fact that sinus phlebitis may run a long course without any of the symptoms by which we are supposed to recognize it, and that for a long time at least it may be self limited. As to what would have been the ultimate outcome, had no complications arisen, must be left to conjecture. With no localizing symptoms, and with an abscess within the sinus, and a cerebellar abscess, already opened, I scarcely felt warranted in making further search, and, as the autopsy showed, the second cerebellar abscess would almost certainly have escaped detection.

In closing, I wish to again urge upon the profession the importance of timely operation upon diseased mastoid processes. Some of us are accused of operating unnecessarily, and are told that the most of them, if left alone, will get well. The cases

presented herewith show very plainly what happens not infrequently when operation is not done when it should be, and how by late operation, on account of the complications, only one of them recovered, as contrasted with almost certain recovery in case of timely operation upon simple uncomplicated mastoiditis.

DISCUSSION.

H. A. Alderton: Mr. President and members of the Society, when Dr. Sheppard asked me to come here this evening and discuss his valuable paper, I knew that I could not add much to it. He has told us so much that there is very little more to say, if anything. He certainly has presented it in a way which is intensely interesting and, because of his great experience, very valuable to us. All that I can say will be supplementary to what the Doctor has said, and, indeed, if he had read his paper completely without leaving out parts, as he was compelled to do for want of time, it would not be necessary to make any remarks at all. I should simply have to compliment him upon his paper.

There is one point that it is well to remember in the anatomy of the part, and that is that it seems to be the experience of those who have had considerable opportunity for investigating this condition that it is rather more apt to occur on the right side than upon the left. McEwen states that anatomically the right sinus lies usually closer to the antrum or more anteriorly and a little bit more external than does the left. It is also true that in certain cases there may not be the necessity for disruption of the bony wall that usually exists between the antrum, the tympanic and middle ear cavities and the sigmoid sinus. It sometimes happens that there is no such wall, that there is simply a fibrous membrane between these cavities and the sigmoid sinus, which membrane is made up of the periosteum of the part. It is well to bear this in mind, because in that way you would sometimes get a direct infection through this fibrinous wall. It is also not necessary that there should be perforation of the drum or discharge from the ear. Cases have been known in which there has been no such septic operation and the mastoid involved and the sinus infected without any perforation of the drum membrane or any discharge from the middle ear cavity.

The Doctor spoke of the symptom of edema of the superior cervical triangle, the upper part. This is due in many cases to a lymphadenitis of the deep cervical glands and is one of the

points in differential diagnosis between an extra-cranial and intra-cranial affection. If the deep cervical glands are affected they are difficult to detect, but it is very important to find whether they are involved, because they point to an intra-cranial involvement, whereas if the superficial glands are affected it generally points to extra-cranial involvement. Of course the adenitis may pass from one to the other in the process of the extension of the trouble from the mastoid.

This swelling, this edema of the upper part of the posterior cervical triangle may also be due to a thrombosis of the posterior condyloid vein, which here forms a connection between the sigmoid sinus and the deep venous plexus, with its attendant inflammatory zone, or there may be a direct passage of pus from a peri-sinus abscess or from a collection of pus in the posterior cranial fossa through the foramen to under the deep cervical fascia.

There was one symptom of intra-cranial venous obstruction which I did not hear the doctor mention, and so far as my cases go I have not noticed it, but it is mentioned by others, and that is engorgement of the veins covering the front of the head, the forehead and the brow. This has been remarked by some men, though usually the thrombosis has been more extensive than in the subject matter of the paper this evening.

In these troubles of the sigmoid sinus there is as a rule no pupillary change. You may get your optic neuritis, but as a rule there is no involvement of the pupil. The pupil reacts as a rule fairly well, unless there is an extension to the cavernous or some of the other larger sinuses, but especially the cavernous. When the cavernous is affected you get proptosis and blindness which begins on the same side as the affection and gradually passes over to the other. This probably would have been brought out by the doctor if he had read his paper throughout, but he purposely left out the differential diagnosis and I am rather in the dark in trying to supplement the paper.

Now, as to ligating the jugular, I think it was in 1897, at the American Otological Society in Washington, that the question of ligation of the jugular was brought up, and at that time I strongly advocated ligation of the jugular and was as strongly sat upon, and since then I think that most of the otologists of to-day have come around to see the advantages of ligating the jugular in infected sinus thrombosis. The only question is whether you shall ligate it before or after you have done the mas-

toid operation and investigated the sinus. Now if there has not already been done a mastoid operation, it is possible that here the greatest mistake may be made. It has happened and such cases have been presented at the various meetings of the different Otological Societies and reported in their proceedings, that the patients became infected with erysipelas and have given the chill and the rise in temperature that usually indicates a sinus thrombosis. If you tie the jugular first you would undoubtedly in these cases unnecessarily tie it, and while this is not a dangerous procedure in the vast majority of cases, there has been to my knowledge one case reported in which ligation of the jugular produced white softening of the brain with eventual death of the patient; so it is not a measure that is entirely free from danger. Personally, while I realize the importance of cutting off any danger of passage of infection down through the jugular, I think I have been and should be in favor of first investigating the condition of the sinus. Without opening it first in the majority of cases you can tell by the look of the wall and the surrounding tissues whether you have to deal with a pathological condition. The usual sinus wall is of a somewhat translucent bluish gray color with a glistening fibrous look over it—or rather a grayish blue, because it is rather more blue than gray; whereas, when it is infected there is a remarkable change in this appearance. If you find well marked sinus trouble it would be well to ligate the jugular as a second step in the procedure and then cut into the sinus, but I should personally be in favor of exposing the sinus first and then ligating the jugular, and then evacuate your clot and proceed with the operation.

I was glad to hear the doctor lay so much stress on the fact that in a case of sinus thrombosis we have not always to do only with that condition. In a certain percentage of cases we have also in connection with the sinus thrombosis a cerebral or cerebellar abscess. Now it might seem to a man who had called in a specialist in this line that the abscess might be the result of the specialist's operative interference, but it is true that a very fair percentage of cases of sinus thrombosis, especially occurring in chronic middle ear troubles, have coincidently a cerebral or cerebellar abscess.

Dr. W. C. Braislin: It gave me great pleasure to listen to Dr. Sheppard's paper. He deserves the thanks of all of us and I particularly wish to tender him mine.

I think, to illustrate one point and perhaps add to the interest

of the paper, I might relate a case which occurred in my service in the Williamsburg Hospital last year. It was one of those cases in which the lateral sinus thrombosis was overshadowed by the symptoms of cerebral and cerebellar abscess and meningitis.

The case came to me on the 10th of December, was admitted to my service, and a diagnosis of mastoid abscess made, with a history of mastoid trouble of six weeks' standing on the right side; swelling and tenderness over the right mastoid and at that time a temperature of 99° . The operation was done on the same day. The cells were thoroughly curetted; pus was found in large quantities and the sinus was involved. The sinus was opened, a clot removed and a free blood current established in both directions. An abscess was found on the dura of the cerebellum. The case went on for a few days very well. Three days after operation the temperature rose to 103.8° , pulse 110. This led us to operate again, and further operation revealed another abscess on the dura of the cerebellum. The temperature dropped, remaining low up to December 19th, when it reached 104° , and the next day it rose to 105° , with pain in the neck on the right side. Fearing that a pyemic condition was extending downward along the vein I cut down upon the internal jugular and tied it in two places and cut it, and at that point it was perfectly healthy. The patient, however, went on getting progressively worse, with symptoms of abscess and meningitis, from which he died about a week after the last operation.

THE GIFT OF THE PURPLE COLLECTION TO THE LIBRARY OF THE SOCIETY.

At the stated meeting of the Society held June 18, 1901, the presentation of the Purple Collection was made a special order of business. In connection therewith the Directing Librarian, Dr. J. M. Winfield, read the following communication:

*The Medical Society of the County of Kings, Dr. William
Browning, President:*

We have the honor to tender to you, as a gift to the Library of the Society, a collection of some five thousand volumes of

medical books, periodicals and pamphlets. This collection is the major part of the choice medical library collected by the well-known bibliophile, the late Dr. Samuel Smith Purple, of New York City, and was secured by purchase from the New York Academy of Medicine.

It includes complete files of nearly all the earliest American journals, many of which are exceedingly rare and almost impossible to obtain from another source; files of the various local, state and national society transactions; rare medical Americana, biographies, histories, and classics, in addition to over twenty-five hundred valuable medical books.

Dr. Purple spent many years in making these periodical files complete, and we realize our good fortune in obtaining for the Library in a single collection material that otherwise it would take years for the Society to acquire.

Most of the volumes are beautifully bound, and we contemplate with satisfaction the improved appearance they will give our stack-room.

We have provided a suitable distinctive book-plate for each volume, which will serve both as a memorial of the labors of Dr. Purple and also as a stimulus to further the co-operative interest and effort of our fellow members, in building up a great medical library here in Brooklyn.

Deeming it a privilege and an honor to be able to present this valuable addition to the Library of the Society, we beg you to accept this gift.

[Signed:]

SILAS CANADAY BLAISDELL,
ZACHARY TAYLOR EMERY,
MATTHIAS FIGUEIRA,
GEORGE RYERSON FOWLER,
THOMAS RUSHMORE FRENCH,
CHARLES JEWETT,
JOHN ALVA McCORKLE,
WILLIAM MADDREN,
DAVID AUGUSTUS MYERLE,
HENRY LOUIS SCHELLING,
JOSHUA MARSDEN VAN COTT,
FREDERICK WILLIAM WUNDERLICH.

PRESENTATION OF THE PURPLE COLLECTION.

REMARKS BY THE PRESIDENT.

Both personally and as President of this Society it was a great satisfaction to learn of the gift that has just been officially announced by the Directing Librarian. When we received the Watson Collection last year, it did not seem probable that anything approaching it in importance would soon again come our way. But even a rapid inspection shows that the one now turned over to us contains a vast quantity of material that is most valuable and that it would be almost impossible to duplicate.

Certainly if we are to have a library of the first order, we need to be strong not only in the classics and in foreign works, but also, and especially should we desire complete files of early medical Americana. Such works are becoming rare. It would take a fortune to gather what we now have safely housed. There are still gaps, but they can probably be filled in—and (from a library standpoint) we are in good shape even as matters stand.

From small beginnings, our Library has come to be perhaps our strongest reason for existence as a Society'. The conception of President Bradley Parker in 1844 and the enthusiasm of Dr. Reese, our Librarian early in the seventies, might have been looked upon as visionary at the time. But what they started has now become (to use a biblical phrase) "the head of the corner."

Our Library represents the personal labors of several, the money gifts of a large number, the selection of the best from the libraries of many members now gone, large contributions from other libraries, invaluable exchanges from our Journal, an endowment fund, and now these two large special purchased gifts. It is a growth, is still growing, and is, I believe, a matter of pride with each of our members. This is justly so because it provides for our immediate needs what no one alone can provide for himself; but it is also like the science for which we labor—the one lasting possession of our organization. It has strengthened the profession of Brooklyn more than any other agency.

Much thought has been expended in devising methods for enlarging our collection. As our means are limited or really wanting, we must succeed by vigilance and by promptness in availing ourselves of favorable opportunities. Every member who

travels abroad might, like Dr. Jacobi for the Academy, or the late Dr. Thallon for us, post himself regarding our needs and bring back something. Several of the members ought also to combine and by an agent keep watch of continental collections now and then obtainable. Thus, desirable additions can sometimes be secured at a bargain, or within the limits of our small purses.

In the case of the present gift, I feel at liberty to say a word not only about Dr. Purple but also of the donors.

As you may know, Dr. Purple was a true medical bibliophile. He had love and skill for the work. His first large collection was the original boom that started the N. Y. Academy towards its great aggregation. He then started in again. We have felt the benefit of his great usefulness in this field, even before receiving the present gift (from books that have come to us indirectly, and from the impetus that he gave to this object). Let us share with the Academy in a kindly and loving regard for the noble old man who toiled so many years for others. He left no child to dispute us the privilege. It takes a deal of money to corral such a vast mass of selected material, and it also takes on the part of the collector an amount of labor that is almost appalling. We and our successors are to be the beneficiaries.

To the twelve of our members who so promptly and gladly came forward with the means to secure this for us, I feel that the highest praise and gratitude should be accorded. It shows a spirit in our profession and a wisdom on the part of our library management that make one proud. It means more in the long run than had it been done by one individual. It is a happy custom to inscribe their names in each volume, and I for one shall never look at the record in one of these books without an added feeling of regard for each of the givers.

THE PURPLE COLLECTION AND ITS VALUE TO THE SOCIETY.

BY THE LIBRARIAN.

The library of the late Dr. Samuel Smith Purple has long been known as one of the choicest private medical libraries in this country. As long ago as 1875, Dr. Samuel D. Gross in his "History of American Medical Literature" mentioned it as one

of the finest collections in America and credited it with containing at that time 6,000 volumes.

In some respects the career of Dr. Purple was remarkable, and he well may be termed a self-made man. The early years of his life, during which he secured his medical education and started in practice, were years of struggle for mere existence. Having passed through this trying ordeal, his later life was that of a quiet gentlemanly practitioner whose time was devoted to his chosen profession and to his love of books.

In 1848 he became editor of the *New York Journal of Medicine*, and his contributions to medical literature show to advantage his well-balanced mind, capable of grasping comprehensively all sides of a question before he expressed his opinion. His writings were convincing and invariably were couched in a highly polished literary style.

As a mark of the esteem in which he was held by his contemporaries, in 1875 he was elected president of the New York Academy of Medicine, and again in 1877 for a second term. Dr. Purple died in New York on Sept. 29, 1900, in his seventy-ninth year.

Though his achievements as a successful practitioner and writer by no means were small, yet it is rather his fame as a bibliophile and as the founder of the Library of the New York Academy of Medicine that will carry Dr. Purple's name down to posterity. In commemoration of his services in its behalf, the Academy has recently placed at the entrance of its library a bronze memorial tablet bearing this inscription: "Samuel Smith Purple, M.D. Born June 24, 1822—Died September 29, 1900. Founder of the Library of the New York Academy of Medicine, to which he gave large and valuable contributions; a president of the Academy, and an earnest and successful worker in its interests. This tablet is erected to commemorate his many virtues and rare usefulness."

In his second inaugural address before the Academy, Dr. Purple chose as his subject, "Medical Libraries of New York," and in it he advocated the building up of the great library which stands to-day as a memorial of his efforts.

He gave to the library of the Academy its first real start by presenting a large and valuable part of his own library and continued his liberal contributions from that time on. For the last twenty-five years he labored to duplicate for his own library the rare periodical files he had given to the Academy, and it is this.

collection resulting from these years of toil and research on the part of an enthusiastic bibliophile which is now so generously presented to our own Library under the title of "The Purple Collection."

Of the earliest and rarest American periodicals, it includes files of the *Medical Repository* (N. Y., 1797-1824), *Philadelphia Medical and Physical Journal* (1804-9), *Philadelphia Medical Museum* (1805-11), *Baltimore Medical and Physical Recorder* (1808-9), *New York Medical and Philosophical Journal and Review* (1809-11), *American Medical and Philosophical Register* (N. Y., 1810-14), *New York Medical Magazine* (1814-15), *Medical and Surgical Register* (N. Y., 1818-20), *New York Medical and Physical Journal* (1822-30), *Western Quarterly Reporter* (Cincinnati, 1822-23), *Boston Medical Intelligencer* (1823-28), *Medical Review and Analectic Journal* (Phila., 1824-26), *New York Monthly Chronicle of Medicine and Surgery* (1824-25), *Western Journal of Medical and Physical Sciences* (Cincinnati, 1827-28), *Transylvania Journal of Medicine* (Lexington, Ky., 1838-39), *New York Medical Inquirer* (1830), *New York Medico-Chirurgical Bulletin* (1831-32), *United States Medical and Surgical Journal* (N. Y. & Phila., 1834-36), *Annalist* (N. Y., 1846-49), *Belmont Medical Journal* (Bridgeport, O., 1858-60), *Berkshire Medical Journal* (Pittsfield, Mass., 1861), *Georgia Blister and Critic* (Atlanta, 1854-55), *Louisville Medical Journal* (1860), *Louisville Medical Review* (1856), *Maine Medical and Surgical Reporter* (Portland, 1858-59), *Medical Reporter* (West Chester, Pa., 1853-56), *Oglethorpe Medical and Surgical Journal* (Savannah, 1858-60), *Savannah Journal of Medicine* (1858-61), etc. These constitute but a small part of the periodical treasures in this collection, which includes also a set of the *Index Medicus* and many other journals of great intrinsic value. Hardly less important is the acquisition of files of the various national, state and local society transactions and proceedings.

There are also many of the rare medical Americana, over thirty volumes published in America bearing imprint prior to 1800. Morgan's "*Medical Schools in America*" (1765), Middleton's "*Ancient and Present State of Medicine*" (1769), Bard's "*Angina Suffocativa*" (1771), Jones' "*Treatment of Wounds and Fractures*" (1776), etc., represent some of the earliest contributions to medical literature by American writers.

All the American pharmacopœias are here, the earliest being that published by the Massachusetts Medical Society in 1808.

Tall folios of the fathers—Avicenna, Fabricius, Galen, Rhazes, etc.—and early editions of Harvey add many choice classics to our Library.

Rare also are early works on smallpox and inoculation, some with hand-colored illustrations.

Several hundred scarce biographies and histories improve these branches of the Library. Carson's "*Medical Botany*," Bright's "*Medical Cases*," Morton's "*Crania Americana*," Cruveilhier's "*Anatomie Pathologique*," Vrolik's "*Embryogenesi in Hominis et Mammalium*," and Bigelow's "*American Medical Botany*" are titles of but a few of the atlases whose high market value would preclude the Library's accession by purchase for many years. Of the two or three thousand volumes remaining it may be sufficient to state that they represent the cream of medical literature up to within a few years of the present time. The books for the most part are handsomely bound and some are specimens of the highest art of the bookbinder.

The value of this collection to our Library cannot well be over-estimated, and it is a remarkable fact that the books in this donation duplicate to so slight an extent the books received from the Watson Collection presented last year. "The Watson Collection" was especially rich in foreign books and foreign periodical files, largely on the subject of surgery. "The Purple Collection" includes very few foreign works, but contains the rarest American medical literature, especially in the field of general medicine, biography and history. Through the medium of these two acquisitions our Library is placed in the enviable position of obtaining in a few months material that in other cases has meant the slow accumulation of many years.

In order to make ours one of the greatest medical libraries in the world it is now necessary that we keep up with the current medical literature. This will be possible only by means of a permanent invested library endowment fund. While our accessions from the *Brooklyn Medical Journal* are large, nevertheless there remain a great many valuable American books, a few special American periodicals and practically all foreign literature outside of the exchanges of the *Journal*, and a few periodicals for which we subscribe, which can be secured only by purchase.

Brooklyn citizens have contributed most liberally toward the establishment of our various charities, hospitals, laboratories and medical schools. It yet remains for some benefactor to perpet-

uate his name and influence by providing the financial means for the further development of our Library.

Through the medium of the Library the profession of Long Island is able to keep in close touch with the very latest advances of medical and surgical science. It is the knowledge thus gained from the cumulative experience of practitioners throughout the world that our physicians and surgeons are able to apply in our own hospitals and in general practice for the good of the public health and the public welfare. Bearing these two truths in mind, the importance of the Library and its direct value both to physician and patient readily can be appreciated.

The fact is becoming recognized that our Library is the key-stone for the future highest development of the medical profession of Long Island, and the interest of laymen as well as that of physicians must be enlisted in order to extend its resources.

The opinion of twenty-four of the leading physicians of this Society is expressed by the fact that within eight months they alone have purchased and presented to the Library over ten thousand volumes.

Upon the growth of this spirit among our members and upon their ability, individual and collective, to enlist the interest and support of Brooklyn's generous and public-spirited citizens, the future success of our Library rests.

Through the generosity of Mrs. Zabriskie, a start in the right direction has been made in the "Zabriskie Memorial Library Fund" of \$2,000.00. It is necessary for us to increase this amount many fold before our Library will fulfil its highest mission.

THE BROOKLYN MEDICAL JOURNAL.

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EDITORIALS.

A YELLOW FEVER INSTITUTE.

For many years the causation of disease through the intermediary of animal and vegetable parasites has been recognized in medical literature, and measures have been taken to destroy these wherever and whenever possible, and as a result parasitic diseases are much less common now than formerly. But, while *sarcoptes scabiei*, *filaria Medinensis*, and the various forms of *tania*, representing the animal parasites, and *tinea tricophyton*, and *achorion Schönleinii* of the vegetable class, have forced themselves upon the medical investigators, the mosquito and the fly have until very recent times been overlooked in their etiologic relation to disease.

During the Spanish-American War it was abundantly demonstrated that flies served as the carriers of typhoid infection from person to person, and from one camp to another. That the mosquito serves in the same capacity as a bearer of infection has, as our readers know, also been abundantly proved.

In 1881 Dr. Finlay, of Havana, advanced the theory that yel-

low fever was propagated by mosquitoes; this, however, attracted but little attention, and to Dr. Walter Reed and his colleagues in the Army Medical Service must be attributed the honor of first demonstrating the undoubted connection between this insect and the dreaded yellow fever, which in times past has scourged the southern part of the United States and kept the northern part in a state of anxiety lest it should appear there in epidemic form. In an official report, made by Dr. Reed and the Medical Commission of which he was a member, the statement is made that it is by the mosquito and by but one species that yellow fever is conveyed to man; that species is the *stegomyia fasciata*. The proposition here laid down is a bold one to make, and certainly the commission must have the courage of its convictions or it would never have dared to make it, without reservation of any kind or description. Knowing the attitude of the United States Marine Hospital Service towards the Army Medical Service, we are not surprised to learn that the officials of that arm of the service are not willing to accept this opinion without further investigation. In accordance therewith the Surgeon-General has submitted to the Secretary of the Treasury a plan for the organization of a yellow fever institute as a part of the United States Marine Hospital Service, the object of which shall be to collect all facts concerning this disease; to designate the specific lines of inquiries to be made, and to make them. In the issue of "Public Health Reports," dated September 27th, published by the Treasury Department, a full outline of the plan and scope of this institute is given. We hope that the necessary funds will be granted by Congress to carry out Surgeon-General Wyman's suggestion, as being in the interests of commerce, science and the public welfare.

SEWAGE PURIFICATION.

Of the various methods resorted to for the purification of sewage, less is known of the septic tank method than of all the others; sand filtration, continuous or intermittent, sewage farming, chemical precipitation, and bacterial filtration, all have their advocates, and likewise their opponents. Those who look upon the septic tank as being the solution of the troublesome problem of sewage disposal think that it is usually difficult to obtain in the neighborhood of cities sufficient suitable ground for sand filtra-

tion, or for sewage farming. Against chemical precipitation they raise the objection of cost, both of the chemicals and the handling of the sludge, and a further objection that the effluent is liable to become offensive. As to bacterial filtration they regard it as impractical when used alone, as the filters are liable to become clogged, and on account of their size are expensive to construct. When used, however, in connection with the septic tank, bacterial filtration is of great value.

The plan proposed by Cameron is that usually adopted in England and America, under various modifications. The sewage is first received in settling basins, from which it passes to the septic tank, where it is exposed to the dissolving and liquefying action of anaërobic bacteria; subsequently in the filter bed, the oxidizing of aërobic species completes the breaking down of the sewage. In some places the tanks are covered and practically air-tight, while in others open tanks are used, the scum which forms upon the surface of the contents serving as a cover to exclude the air and render the conditions favorable to the development of the anaërobic bacteria.

The septic tank method has been studied in England and in this country, both the London County Council and the Massachusetts State Board of Health having devoted much time to its investigation. The report of the latter body states that the addition of a septic tank to a sewage purification plant may be of great value in many instances, the suspended matters of the sewage which are the chief factors in clogging the surface of intermittent sand filters being eliminated from the sewage when it flows through the tank. That there are objections to its use under all circumstances, however, is manifest from the results obtained by the London County Council. They find that while organic matter is destroyed, pathogenic bacteria are not, the number remaining after the bacterial treatment of sewage being nearly the same as in the crude sewage. Colon bacilli are not reduced in number, and the Council assume that typhoid bacilli would likewise be unaffected. If the effluent from septic tanks was discharged into streams, the water of these would not be potable. They suggest sand filtration for the further purification of such effluent.

Septic tank plants have been installed in this country at Urbana, Ill., and Independence, Mo.

THE CAUSE OF DEATH OF PRESIDENT McKINLEY.

In the absence of the official complete report of the autopsy findings in the case of the late President of the United States, editorial comment has been withheld. This report has just been received and in the next issue we shall present a review of the surgical aspects of the case by George Ryerson Fowler, M.D., and one of its medical aspects, by a Brooklyn physician of equal prominence.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Stated Meeting, June 18th, 1901.

The President, William Browning, in the Chair.

There were about 100 members present.

The minutes of the previous meeting were read and approved.

REPORT OF COUNCIL.

The Council reported favorably upon the following applicants for membership:

George H. Cruikshank, L. I. C. H., 1899.

Maud Miller, Woman's Medical College, New York, 1899.

Eugene La Forest Swan, L. I. C. H., 1898.

J. L. Rathbun, L. I. C. H., 1899.

Frank J. Duffy, L. I. C. H., 1896.

Henry Bagully, L. I. C. H., 1900.

APPLICATIONS FOR MEMBERSHIP.

Charles Wuest, 1024 Bushwick avenue, P. and S., New York, 1896; proposed by Drs. Bell and Myerle. Siebert Balaban, 35 Palmetto street, Heidelberg, proposed by Otto Frischbier, seconded by William Browning.

William T. Scoville, Church street, Richmond Hill, proposed by George McNaughton, seconded by David Myerle.

Cecil McCoy, 53 Seventh avenue, P. and S., New York, 1895;

proposed by H. Beckman Delatour, seconded by William S. Hubbard.

Charles Louis Fincke, L. I. C. H., 1899; proposed by J. M. Van Cott, seconded by R. W. Westbrook.

CORRESPONDING MEMBERSHIP.

Henry Winans Burnett, Butler Hospital, Providence, R. I., L. I. C. H., 1897; proposed by William Browning, seconded by David Myerle.

J. Abbott Nile, Rumford Falls, Me., L. I. C. H., 1899; proposed by Membership Committee.

ELECTION OF MEMBERS.

The following having been regularly proposed and duly accepted by Council, were declared by the President elected to membership:

ACTIVE MEMBERS.

Henry E. Bell, L. I. C. H., 1898.

Mary L. H. Arnold Snow, Cooper College of Medicine, California, 1897.

William Benham Snow, P. and S., New York, 1885.

Frederick A. Cook, University of New York, 1890.

James Pullman, Yale, 1899.

Albert L. Clark, Bellevue, 1878.

Van Nooy W. Weed, P. and S., New York, 1900.

Alexander Gilligan, L. I. C. H., 1899.

Thomas S. Patterson, L. I. C. H., 1890.

Thomas S. Segelcke, L. I. C. H., 1898.

R. A. Shields, L. I. C. H., 1890.

J. H. McCabe, L. I. C. H., 1890.

Frederick D. Crawford, L. I. C. H., 1898.

CORRESPONDING MEMBERS.

Frank J. Davey, Manhattan.

Martin W. Curran, Manhattan.

George Andrews Cook, Montague, Mass.

Charles A. Byrne, Hatfield, Mass.

Frank Parsons Norbury, Jacksonville, Ills.

John A. Lyons, Chicago, Ills.

Augustus Marable, St. Joseph, La.

George F. Bowden, Botwoodville, Newfoundland.

Otto John Muller, San Francisco, Cal.

Robert M. Langdon, Closter, N. J.

SCIENTIFIC BUSINESS.

Paper: "Otitic Sinus Phlebitis and Thrombosis." By J. E. Sheppard, M.D.

Discussion by Drs. Alderton, Lutz and Braislin.

An address on "The Present Status of the Cancer Problem." By Dr. H. R. Gaylord, Director of the New York State Pathological Laboratory at Buffalo.

On motion a unanimous vote of thanks was tendered Dr. Gaylord for his able presentation of the subject.

SPECIAL ORDER OF BUSINESS.

J. M. Winfield, on behalf of the donors, presented to the Society a collection of some 5,000 volumes of medical books, periodicals and pamphlets.

On motion, this collection was accepted by the Society and its thanks tendered to the donors.

The President announced the donation to the Society, by Dr. Charles Jewett, of a portrait of Prof. A. Jacobi.

The President also announced the donation, by Dr. E. H. Wilson, of a series of micro-photographic slides of bacteria.

On motion, the thanks of the Society were tendered to Dr. Jewett and Dr. Wilson for their donations.

On motion, adjourned.

WM. S. HUBBARD,
Associate Secretary.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section in Laryngology, Rhinology and Otology.

WILLIAM C. BRAISLIN, M.D., EDITOR.

Sixth Stated Meeting, Saturday, May 25, 1901.

TUBERCULOSIS OF THE LARYNX.

Etiology and Pathology, H. M. Smith, M.D.

Symptomatology and Diagnosis, C. E. Clark, M.D.

Treatment, Charles P. Grayson, M.D., Professor of Laryngology, University of Pennsylvania.

(CONCLUDED FROM OCTOBER ISSUE.)

THE TREATMENT OF TUBERCULOUS LARYNGITIS.

BY CHARLES PREVOST GRAYSON, M.D.,

Lecturer in Laryngology and Rhinology, University of Pennsylvania.

Mr. Chairman and Gentlemen: Believe me, it is much more than a mere formality when I express at once my pleasure and my thanks for the privilege of sharing the work of this meeting with you. The pleasure that I anticipated was quite sufficient to overcome my diffidence, my natural hesitation in accepting your chairman's invitation to take so prominent a part in this evening's discussion. But I may as well confess at the outset that, in connection with the therapeutics of this disease, I have brought you nothing that is particularly new or startling, nothing that will properly compensate you, I fear, for the courtesy of your invitation. I shall review with you as rapidly as I may the treatment that has been in vogue at one time or another during the past decade, and shall only dwell for a few moments upon those points that have seemed to me of more than ordinary interest and importance. To be perfectly frank, I have not yet

succeeded in making a personal trial of everything that has been suggested for the treatment of tuberculous laryngitis. Indeed, during the past several years, instead of promptly dropping the old upon the appearance in literature of something new, I have remained faithful to certain remedies and procedures that have served me well, and have endeavored only to perfect myself in their application. Before discussing these with you, I wish to take the opportunity to say that my view of the prognosis of this disease is not nearly so gloomy as that which seems to be almost universal among general practitioners and even among a large proportion of laryngologists. The facts that quite a number of indisputable instances of spontaneous healing of tuberculous ulceration within the larynx have been reported, and that many of us have secured cicatrization of these lesions even while the tuberculous process situated elsewhere has steadily progressed, have been sufficient to convince me that the natural tendency of the tuberculous larynx is to get well, provided it is given a fair chance. Does not the extreme rarity of primary tuberculous infection of the larynx, in spite of its exposed position, favor the view that not only is its defensive power against this species of microbic infection very great, but that, in the event of its occurrence, this power will continue to contest the advance of the disease, and, in all probability, successfully, if it be reinforced by the assistance that we are able to extend to it? The nature of this assistance will, of course, be largely influenced by the widely varying conditions encountered in different cases, but should the disease be, as we know it almost always is, a sequence of the same disease within the lung, the value of our assistance will depend to a great extent upon our ability to control the primary disease and so to protect the larynx from continued re-infection. From this point of view, it does make a very material difference whether the infection comes from within through the medium of the blood and lymph vessels, or from without through some breach in the integrity of the epithelial covering of the mucous membrane. In the one case we are practically helpless to prevent it, in the other we can often make a winning fight. Without any further reference to prophylaxis, I shall consider at once the treatment of the disease itself. However we may differ as to the principles and details of our local treatment, we are, probably, very nearly of one mind as to its general management. In case the patient can afford the advantages which change of climate and altitude may secure him, our

selection of the new locality will be conditional upon so many of the features present in each case, that no strict rules can be formulated for our guidance. Whether it shall be high, cold, and dry, or, on the other hand, low, warm, and moist, or whether it shall have various modifications of these climatic peculiarities, is a question the wise decision of which will often require much reflection and an intimate knowledge of our patient. Whatever the environment, however, there are certain hygienic principles relating to the tuberculous larynx that must be rigidly enforced. To put it briefly, the removal or suppression of everything that can possibly act as an irritant must be attempted. Above all other considerations, I should place the need for functional rest. Barring the two physiologic sources of disturbance, respiration and deglutition, we can usually moderate, at least, the activity of all others. The use of the voice, either phonic or in whisper, must be absolutely prohibited. Knowing what a trial this is to the average patient and how few of them have sufficient self-control to observe strict silence, I fancy that many of us are disposed to be lenient in this matter and to be content with lessened use of the voice instead of its entire abandonment. It is, I think, a mistaken kindness this, because not only is phonation injurious in itself, but it almost inevitably provokes increased frequency of cough and more or less vigorous clearing of the throat in order that the voice may be rendered for the moment more distinct. It is infinitely better to exact a promise of silence from the patient and to have him conduct his communications entirely in writing, and, in order to make this practicable, it may be necessary at times for the patient to change his occupation or to relinquish work altogether. The subject of food and its adaptation to the intensely sensitive condition of the larynx is one that requires eternal vigilance, and we cannot be too explicit in our instructions and insistent upon their observance.

If there is ever any truth in the old saying that "there is nothing so bad for a cough as coughing," surely it is when we have a tuberculous larynx to deal with. The topical treatment of the larynx will, of course, greatly modify the frequency and character of the cough, but while we are all agreed, no doubt, that it would be better for the stomach's sake to wholly avoid the internal use of drugs for this purpose, yet there are critical moments in the course of this disease when resort to them is entirely judicious and will be justified by the good effects of the increased rest that they secure.

In connection with the cough, I think this an opportune moment to speak of a procedure that has not, it seems to me, achieved as wide a popularity and general use as it deserves. I mean the intra-tracheal injection of solutions of menthol, guaiacol, or eucalyptol in olive or some other oil. For routine employment, not only in this, but in several other affections of the air tract, there is scarcely anything that I hold in higher favor than this. I do not resort to it with any idea that it exerts, *directly*, the least salutary influence upon the pulmonary disease. I do not believe that it does, but there is no room for argument concerning the favorable effect that it has both upon the character of the cough and that of the sputum. This later becomes thinner in consistence and easier of expectoration, and, as a consequence, the cough lessens both in violence and frequency. Whether the injection of these solutions lessens, also, the infective quality of the sputum, I shall not stop to discuss, but it does not seem unlikely.

And now, gentlemen, in considering the strictly local treatment of the tubercular larynx, I shall not be inconsiderate of your time and patience. We are all of us aware how very extensive is the literature of this disease from the therapeutic standpoint, and I have no disposition to review even the crop of the past year or two and attempt to sift the chaff from the wheat. We naturally divide the direct treatment into that of the pre-ulcerative stage and that which becomes appropriate when ulceration has commenced. I shall dwell but a moment upon the treatment of the first of these. We will be guided in our selection of remedies by ordinary general principles, the measures employed varying of course, according to the state of vascularization of the tissues, the amount of infiltration and the character and quantity of the expectoration. At one time astringent and at another stimulating sprays will be of service, and inhalations, partaking of one or the other of these qualities, may also be used with benefit. I cannot help thinking that the use of inhalations or of finely comminuted sprays is much preferable to the introduction of powders within the larynx, at least before the occurrence of ulceration.

With beginning disintegration of the infiltrated tissues and the appearance of ulceration, our treatment will not only become more elaborate and make greater demands upon our technical skill, but there will arise the added necessity for its more frequent repetition. With regard to this latter point, I have gradu-

ally become quite confident that the results of our treatment of tuberculous ulceration of the larynx would be much more encouraging, much more satisfactory, that, in other words, our proportion of cures would be greatly increased if it were always practicable for us to see our patient three or four times each day, instead of but once, or even less frequently than this. If tissue necrosis and extension of infiltration are disposed to be at all active, visits at such wide intervals as alternate days can have but little more than a retarding influence upon the destructive process. Its complete arrest can scarcely be hoped for if our treatment be less aggressive than the disease itself. There are many difficulties, of course, which combine to hamper both the patient and ourselves in this matter, but whatever mutual sacrifices may be necessary to the end of securing this frequency of treatment, they will be found, I think, quite worth the making. The thorough cleansing of the larynx every few hours, the complete removal from it of the mass of broncho-pulmonary sputum mingled with the débris of local necrosis and purulent discharge, while greatly facilitating the action of any remedial application, is, of itself, of distinct value as permitting, if not promoting cicatrization. It is extremely unfortunate that the victim of this disease cannot clear his larynx as successfully as he can his nose or naso-pharynx. It is we who must do this for him, and the more often and thoroughly we do it, the greater will be the certainty and rapidity of his improvement. I do not suppose it would be practicable, but I cannot help wishing, nevertheless, that we might have sanitariums for these cases of tuberculosis in which the larynx is the more seriously involved organ. Under such circumstances cleansing and medication could be made an almost continuous performance, and I am sure that many cases which now defy our efforts could be brought under early control and conducted to ultimate cure. The alkaline solution in spray form, supplemented, if necessary, by the direct application of peroxide of hydrogen with the tuft of cotton, will usually rid the larynx of its irritating contents and give us an approximately clean surface for the action of medicaments. And what a bewildering number of these has been suggested! On second thought, however, I do not think there is any real occasion for bewilderment. In spite of the fact that it has been termed antiquated and even barbarous by an occasional over-zealous advocate of some other remedy, I am as well satisfied with lactic acid as I could be with anything not possessing actually specific properties. I believe

that in it we have a remedy that, properly used, will cure any case that may be reasonably regarded as curable. I believe, also, that a 50 per cent. solution used twice each day will be more effective than the pure acid used but once daily. I need not emphasize the necessity for energy in its application; this is a matter of common knowledge, and if the larynx has been sufficiently cocaineized previous to its application, my experience has never furnished me with an instance that would afford the least justification for the use of such an adjective as barbarous in referring to it. This may have been an exceptional experience, but I have never heard anything but the mildest complaint of its painfulness, and seldom even this. It is immediately after this application that I use the intra-tracheal injection already mentioned; and, finally, in those cases when both the depth and superficial extent of ulceration are above the average, I complete the treatment by the insufflation of iodoform in combination with some indifferent powder. In its entirety, this treatment, I grant, takes time, but I do not grudge a moment that usually proves to be so well spent.

The problem of controlling the agonizing pain that so often accompanies this ulcerative process is one of acknowledged difficulty. Of the small number of remedies that have any value in this emergency, orthoform has seemed to me the most dependable. Its efficiency is influenced somewhat by the method of its use. The well-known emulsion originated by Dr. Freudenthal, though therapeutically entirely satisfactory, is, I think, inconveniently elaborate, and, moreover, it is desirable that it be of recent preparation. Equally efficient, I have found, and much more convenient is an oily solution of the drug. Albolene, benzoinol and others of the petroleum derivatives have a very feeble solvent power, and have, therefore, a limited value as vehicles. Much more active than these, however, is an oil recently introduced by a Philadelphia chemist, Mr. Young, which he calls "Basol," and which will hold in perfect solution 15 grains of orthoform and 10 of iodoform to the ounce. This solution carried to the ulcerated larynx, either by means of the cotton mop or sprayed from an atomizer, adheres to the surfaces quite long enough to exert the full effects of the remedies that it contains. I have deferred until now, gentlemen, any reference to the surgical procedures that have been periodically eulogized for employment in this disease. Personally, I am not an advocate of this mode of intervention. In the abstract, the removal by the curette of necrosed

tissue, preceded if necessary by the incision of infiltrated areas, seems perfectly rational and judicious, and from this point of view, probably few, if any, of us would question its propriety, but, as a matter of fact, this method, instead of being well adapted to and attended by favorable results in all or even a majority of cases, has been found, on the contrary, to be applicable to only a carefully selected few. Even those who champion its cause most ardently, not only admit its limitations, but insist upon a most accurate discrimination in the choice of cases. Even with the exercise of this care, however, it is still debatable whether the results that it gives are so far superior to those obtainable from the less heroic measures that I have detailed, as to compensate for the inflammatory reaction, the intense suffering, and the marked, though temporary, systemic depression exhibited by the patient.

The special pathologic conditions that would justify a resort to tracheotomy or laryngo-fissure are of such exceptional occurrence that any extended discussion of them would be inappropriate in a paper such as this.

Whether we are to be furnished with anything of specific virtue through the investigations now being conducted with Koch's new tuberculin and its several modifications is a possible outcome that we all of us will doubtless await with lively interest.

And now, gentlemen, to conclude, I have only to reiterate my belief that the cure of tuberculous laryngitis, while it will continue to depend to a certain extent upon the stage and activity of the pulmonary disease and what remains of the general vitality of the patient, will do so to an almost equal extent upon the frequency and the patient thoroughness with which we carry out whatever local treatment we may adopt. We have all watched the steady cicatrization of an ulcerated larynx as the result of our efforts, even while the destruction of the lungs steadily progressed in spite of them. I am much less pessimistic now as to the curability of this disease than I was a dozen or even a half dozen years ago, and where once we may have dreaded the appearance of these patients in our offices, we can now greet them cheerfully and with the assurance that, though, perhaps, we may fail to cure, we cannot fail to afford them that relief from suffering which robs approaching death of half its sting.

THE BROOKLYN SURGICAL SOCIETY.

Regular Meeting, Nov. 1, 1900.

The President, DR. JAMES P. WARBASSE, in the Chair.

CONGENITAL HYDRONEPHROSIS.

DR. H. B. DELATOUR reported the case of an unmarried woman about 22 years of age, referred to him by Dr. Poole as a case of appendicitis. On examination he found a temperature of 103° , and a well defined mass in the right iliac region, exceedingly tender to the touch, but with no rigidity of the right rectus muscle. The case, for some reason or other, impressed all who examined it as not presenting all the characteristics of an appendicitis, but still it seemed to be the only diagnosis that could be made.

On opening the abdomen he found a large mass which was post-peritoneal, and on the surface of which, running up external to the colon, reaching well up to the liver, was the appendix, which was somewhat injected, although it had none of the general characteristics of an inflamed appendix. The position of the mass, as found after the abdomen was opened, plainly indicated its connection with the right kidney. The hand was passed over to the left side and the left kidney carefully examined and found to be of normal size. The posterior layer of the peritoneum was then incised and brought up and by clamps fastened to the skin in the anterior abdominal incision. The incision had been made rather high up, higher up and more to the right than is usual for an appendix operation because of the doubt as to the correctness of the original diagnosis. By so bringing the peritoneum up and fastening it to the skin the operation was made an extra-peritoneal one. Exploration then revealed this mass to be distended ureter which was traced and discovered to have a distinct point of stricture. Its lumen was almost completely obliterated. The aspirator was introduced and a quart of urinous fluid withdrawn. Then it was quite easy to isolate the mass, and it was demonstrated that there was hardly any kidney tissue left. There was not one-fourth of the amount of ordinary kidney tissue remaining to represent the right kidney. As there was good evidence of the health of the left kidney the entire mass down past the point of

stricture was removed. The ureter was removed to a point below the brim of the plevus. The mucous membrane of the divided end of the ureter was inverted and a stitch put across. A second incision was made in the loin for drainage, the posterior peritoneal incision was closed, and the anterior wound closed in the usual manner. The patient was making a fairly good recovery from the operation without temperature when suddenly she began to have copious hemorrhages from the bowels. It was found that she was suffering from worms, and after due treatment for that the hemorrhages ceased and she left the hospital in good health. That was some six or eight months ago, and she is perfectly well at the present time.

This seemed to the speaker to be a case of hydronephrosis, due to a stricture of the ureter, probably of congenital origin. It was not a complete closure. The kidney was undeveloped in all probability.

STRANGULATED UMBILICAL HERNIA: A NEW METHOD OF OPERATING.

DR. H. B. DELATOUR also reported the case of a woman 44 years of age who had had a rather large umbilical hernia, which had existed for a number of years, and became strangulated a week ago on Wednesday. She developed fecal vomiting on Friday, and on Saturday noon he saw her for the first time. She had at that time a pulse of 120, temperature 104°, and fecal vomiting at occasional intervals. She was taken to the Norwegian Hospital. The umbilical dimple was found distinctly inflamed, and an elliptical incision was made so as to avoid going through the skin that was already inflamed. The sac was then exposed and dissected down carefully to the point of passage through the abdominal wall. An incision was then made through the abdominal wall about half an inch below the hernial opening. Then sweeping the finger around the mass from inside it was easily seen there were no adhesions outside of the ring. With a pair of scissors the entire sac, with the constricted ring, was removed; that is, an incision was carried through the abdominal wall right into the peritoneum around the hernial opening. This allowed raising the entire mass away from the abdomen before the sac was opened. As soon as the mass was raised up it was seen that the hernia consisted of the entire omentum, within about three inches of the transverse colon, and a loop of small intestine. Air

incision was made in the constriction sufficient to allow the withdrawal of the intestine, which was found to be completely gangrenous, about twelve inches of it being within the sac. Without making any attempt whatever to withdraw any of the omentum from the sac, ligatures were placed across the entire breadth of the omentum, and it was cut away, removing the entire portion of the omentum within the sac without having made any attempt to reduce it. A resection of the intestine was then done, using the Murphy button, and the abdominal wound closed. The patient made a satisfactory recovery, the button being passed on the eleventh day. By not opening the sac and not handling the omentum, not trying to break up adhesions and reduce the omentum and get down to the neck of the sac, a great deal of time and a great deal of unnecessary manipulation are saved; and further, it gives a better, cleaner, and fresher edge to the opening for suture. It opens the rectus muscle sheath. The first layer of sutures were passed through the posterior sheath of the rectus and the peritoneum, and the second layer through the anterior sheath of the rectus, so the recti muscle from either side were brought together.

Discussion.

DR. GEORGE R. FOWLER said that the method of lifting the hernial sac and its contents away from the abdomen possesses several advantages. The question of the freshening of the edges of the ring itself by this manipulation is unquestionably of the very greatest possible advantage; in fact, so well has it become recognized that for many years past surgeons have been in the habit of excising the entire umbilicus and the edges of the ring itself in this class of cases. He thought that very few surgeons to-day would attempt to close a hernial opening of this character without liberating and dissecting away all of the sac, as well as the thinned out edge of the hernial opening itself. This is usually followed by a splitting of the layers of the abdominal wall in the direction of their plane surfaces in order to identify the inner edge of each rectus muscle and to make sure when the approximation of the denuded edges of the ring is finally secured, that the edge of each rectus muscle is brought so as to approximate its fellow in the median line.

The use of supplementary incisions in order to free adhesions, and for other purposes, has recently come quite prominently into notice, and this method of securing evidence of the condition of

affairs about a strangulated hernia, and particularly a strangulated umbilical hernia, as well as for the purpose of packing off an appendical abscess preliminary to the making of an incision upon the abscess cavity itself over the most prominent part of the tumor, are features of recently introduced technic in abdominal surgery.

The ingenious manner in which the hernial sac and its contents were freed and lifted away from the abdominal cavity before opening the sac itself, in the case reported, is worthy of the highest commendation. This is a particularly valuable detail of technic, in cases where there exists a section of gangrenous gut with all the possibilities of infection incident thereto as well as some of the rarer cases where suppurative conditions have already supervened in the hernial sac.

DR. L. S. PILCHER said that he would like to commend to the attention of all present a method, of which this procedure described by Dr. Delatour is one form, in dealing with umbilical hernia, and that is, of making their entrance not into the sac of the hernia at first, but making their primary attack upon the peritoneal cavity outside of the sac and then working from within outward, instead of from without inward, as we are in the habit of doing in the hernia of the inguinal and femoral varieties. It is not often in these cases of strangulated umbilical hernia that even then we find it possible to withdraw a loop of intestine, even though gangrenous, without opening the sac and going through a somewhat prolonged and difficult process of loosening the adhesions; but it will be found in any event that if the primary incision is made outside of the hernial opening, and then the attempt is made to disengage the contents of the sac by traction from within, followed by the opening of the sac and the division of adhesions, and the removal of a mass of omentum, as in this case, as they present themselves step by step, in order to disentangle and free the abdominal contents from their relations to the hernial sac, it will be found a much more rapid and satisfactory and facile method of dealing with complicated and severe cases than if an attempt is made to open into the sac at first and work from that direction.

DR. DELATOUR said in closing that it is true that in these cases of umbilical hernia there is little or no likelihood of adhesions within the abdomen around the neck of the sac, so that the method pursued here is likely to be possible in all cases, and by so doing we draw away from the abdominal cavity, before we begin any manipulation, all points of possible infection. And likewise he thought

it is true that the adhesions within the hernial sac are almost always adhesions of the omentum to the walls of the sac, and not of the intestine, so that by simply enlarging the neck of the sac sufficiently the intestine will quite readily be withdrawn. Of course there are exceptions to that, but he thought as a general rule it is true. In these cases there is no particular advantage in saving any of the omentum to replace within the abdomen, and we need make no attempt to free any adhesions of the omentum to the sac, but simply ligate it on the abdominal side of the constriction. It certainly saves a great deal of time and a great deal of manipulation of tissues that are not in a healthy condition.

SPINAL ANALGESIA.

DR. GEORGE R. FOWLER, in a general discussion upon this subject, said that since his first experience with the use of cocain as a method of producing analgesia, this occurring on the 8th day of September (and he thought that was the first use of it in this city), up to the present time he has used it in fifty-three cases. This includes operations upon the stomach (a gastrostomy in which it was entirely successful), a nephrectomy; operations for ventral hernia; for inguinal hernia; for hysterectomy; for extra-uterine pregnancy; for appendicitis; for oophorectomy and salpingectomy; for prolapse of the rectum; for hemorrhoids; for fistula in ano; for amputation of the thigh for elephantiasis; for suturing the fractured patella; for amputation of the toes; for ligation of the internal saphenous vein of both sides; for varicose veins, and for varicocele. These, not to speak of the cervix and perineum cases have resulted in an experience covering a wide range of operations. He had not been deterred from persisting in its use, in spite of the fact that what would appear to those who had had no experience with the method to be alarming symptoms occurred in some of the cases.

He early chose the space between the third and fourth lumbar vertebra as the most available, and had continued to make use of this to the exclusion of the space between the fourth and fifth and the space between the second and third, in all of which he believed it had been done. The technic of the procedure itself, including a slight hypodermic injection under the skin at the point of puncture, was practically as he had described it in a previous discussion before this Society. He had gradually reduced the size of the needle until now he had ordered one as fine as the

ordinary 23 Stubb's gauge hypodermic syringe point. He regarded this as about as small a needle as it is safe to use. He had continued, however, as a month ago, to reinforce the slender needle with a thicker needle upon the outside, this also having the advantage of permitting the withdrawal of the finer needle should it become blocked with blood-clot, as did happen in the earlier cases, clearing it and re-introducing it without making a fresh puncture. He found, however, that with reduction of the size of the needle the chances of blood entering the needle diminish. Either this is because it does not find such a ready entrance as in the large opening of the larger needle, or because there is less risk of the puncture of large vessels, the finer needle avoiding the vessels.

The percentage of failures, if the cerebro-spinal fluid is obtained, must be very small. If there is any doubt as to whether the cerebro-spinal fluid has been obtained, then it has not been obtained. There is no question when it does pass through the needle, the quantity is so large and the fluid is so characteristic that there can be no question that it is cerebro-spinal fluid. If, however, a rather turbulent fluid in small quantity is obtained from edema of the parts resulting from the traumatism involved, then the result is apt to be unsatisfactory and disappointing. He had never yet failed to produce analgesia when the cerebro-spinal fluid had been obtained and when the freshly prepared 2 per cent. solution of cocain was introduced. The shortest length of time that the analgesia has lasted, in his experience, had been 27 minutes; the longest $3\frac{1}{2}$ hours. The analgesia has always reached to the diaphragm; the largest number of cases have been analgesic to the fourth rib. The highest point yet reached in his cases has been the highest point that it would be possible to anesthetize with ether or chloroform, namely, the vertex. In four cases the patient was absolutely analgised from head to foot, so that any operation could have been done.

The symptoms which have followed the use of the analgesic agent have been principally nausea, which occurs quite frequently, —in at least half the cases; vomiting while the patient is still on the operating table is present in about 30 per cent. of the cases; involuntary defecation and involuntary urination are present in about four per cent. of the cases. The failure to be able to complete the operation under the analgesia must necessarily vary with the character of the operation itself. The branches of the ilio-inguinal and the ilio-hypogastric nerves where these pass along

the inguinal canal are not affected in some cases, these nerves coming off very high up, as you know, and beyond the influence of the cocain in the instances in which this affects only the parts supplied by the lumbar nerves, and for this reason patients will sometimes complain of pain during operations for inguinal hernia and varicocele, although they do not shrink or make any loud protest. In other cases a dragging sensation is complained of, evidently due to the retraction of the skin edges. The deeper analgesia is sometimes rather less pronounced than the superficial analgesia. In a case in which the speaker had excised the sixth rib with this method of analgesia, the patient complained when the intercostal nerve and periosteum were separated from the rib, although up to that point he had absolutely no pain. The peritoneum itself is sometimes sensitive particularly if chronic or low grade inflammatory changes are present. This, therefore, bars out many of the intra-abdominal operations in which surgeons would be glad to avail themselves of the method.

Speaking of the after-effects of the operation, in addition to vomiting and nausea there is marked headache. This may come on at any time within four or five hours following the operation. If the patients escape it for that length of time they are very apt to escape it altogether. The hydrobromide of hyoscyamin has been used by him for this condition, but with indifferent success. The use of morphia as an antidote has been inefficient in preventing or relieving the cephalalgia, and he therefore had refrained more recently from administering drugs for the purpose of preventing these after-effects, save a 1-10-grain dose of strychnia sulphate, given hypodermatically about a half hour before. The dosage of cocain certainly does not control these symptoms, and therefore he has been confirmed in the belief that it is not the cocain that produces them exclusively; in fact, he had tested this question to his satisfaction. He had kept careful records of all the cases, the amount injected, the length of time and the extent of the analgesia, and other important facts in connection with the effects of the drug. He had carefully compared the cases in which small amounts of cocain were used, with cases in which larger doses were employed, and also with one case in which he had employed a 2 per cent. solution of antipyrin and no cocain whatever. If he were to place side by side for investigation the history and after condition of the case of antipyrin injection and an average case of cocain injection without telling you which was the cocain injection and which the antipyrin injection, it would

be impossible to tell one from the other. He had used a combination of cocain and antipyrin, 5 minims of the 2 per cent. solution of cocain and 20 minims of the 2 per cent. solution of antipyrin, and there was no difference in the effect of this so far as the after effects were concerned—no difference between this and the cases in which larger quantities of cocain were used. He had seen just as much headache, quite as pronounced nausea and vomiting, the same degree of collapse—in fact, absolutely all of the symptoms, which he thought are erroneously attributed to the dosage of cocain, in cases where the minimum quantity of cocain was used, and absolutely absent in the cases in which the larger quantity was used. He was more than convinced at this time that we can use larger quantities of cocain without increasing the symptoms, and inject simple saline solution and get precisely the same symptoms. It is not so much a question of lessening the quantity of cocain, although of course this is desirable, but simply to determine what disturbances occur to produce these symptoms following injection of a foreign fluid into the cerebro-spinal cavity. In one case the respiratory center was involved, as shown by marked cyanosis; prolonged vomiting occurred showing involvement of that center, and persistent vertigo was present in this case even with the patient in the recumbent position; finally the heat center was involved as shown by the fact that the patient's temperature that night reached 106.8° , the highest recorded temperature from this cause. However, these apparently alarming symptoms excited no uneasiness in the speaker's mind, as he had seen manifestations of this sort in previous cases, although to a lesser extent.

If the patient is very nervous, blindfolding and stopping the ears with cotton, in his experience, does not do any good. They will hear in spite of stuffed ears and they might as well see as hear. The surgeon who is in the habit of operating with his patients under general anesthesia is quite likely to ask for instruments more or less suggestive to the patient, and unless a system of signals can be made use of, or everything placed in his reach and perfect silence enjoined, the mental distress incident to the method will not be overcome. Unless this can be done the patients will continue to be nervous under it, so he did not advise its use in patients who are likely to be troublesome during the operation from extreme nervousness.

There is a class of abdominal operations also in which it would scarcely be advisable to continue its use during the entire opera-

tion. It is fortunate for us that we are able to proceed to administer a general anesthetic in the midst of the analgesia produced by the sub-arachnoid injection of cocain. In one case in which an ectopic gestation had to be dealt with, the patient, an Italian woman who knew no English, was brought into the hospital with some temperature and a history of abdominal symptoms of two or three days' duration. Examination revealed the presence of a tender tumor in the left vaginal fornix and presenting also above the pubic line. Abdominal section was undertaken with the patient under cocain analgesia, but as the tumor was reached and broken into a sudden gush of blood occurred. Passing the finger down the speaker found it was a case of ectopic gestation and ruptured tube. A large clot had become partially encapsulated during the two or three days preceding the operation. The blood welled up in large quantities, and it became necessary to make pressure to control the hemorrhage while searching for the bleeding point. Just at this critical moment the patient became nervous, evidently aroused to fear by the commotion in passing sponges and calling for forceps, and began to be uneasy. In order to quiet the patient and enable us to continue the work chloroform was administered, under which the operation was completed. The patient made an exceedingly good recovery.

Not all of the cases had recovered in this series of fifty operations. He would not say, however, that a single one of them died from anything attributable to the spinal cocainization itself. A case of nephrectomy perished on the eighth or ninth day from causes absolutely and entirely unconnected with the analgesia. It was a case of infection, supposedly limited to the right kidney, that being marked enlarged, with an old septic bladder, and a pyonephrosis. The autopsy showed that the woman had in addition to this multiple foci of infection in the other kidney.

A case of abdominal hysterectomy died of peritonitis on the seventh or eighth day, and the third case died yesterday, following an operation for ventral hernia. In this case the patient had the rather rare condition of inflamed and suppurating hernia; there were several suppurating cavities located in the large hernial sac itself and also a somewhat diffused septic peritonitis. The patient died on the fifth day. Dr. Fowler had the spinal cord removed; the specimen was presented, not that there was anything particularly wrong about it, for it appeared to be perfectly healthy, but because of the absolute failure to discover the point where the injection was made after five days, and the general

freedom from disturbance of the parts involved. The spinal canal was opened from the anterior abdominal side, and therefore the portion of intact meningeal structure posteriorly situated represents the place where the injection was made. The cord as removed included the entire cauda equina. When removed from the cerebro-spinal fluid it was absolutely normal to all appearances. There were two or three little points on the meningeal membrane of what appeared to be coagulated lymph or coagulated fibrin. They were attached by slender threads and are about as large as a common pin-head; there was absolutely no injection or turbidity of the fluid in which the cauda equina floated to suggest any possible pathological or inflammatory conditions in connection with these minute flakes of coagulated fibrin.

There has been some investigation made by Landowsky which would seem to indicate that the action of cocain upon the nerve structure is not the result of absorption by the vessels. These experiments were made with a view of determining just how medication thrown into the subdural space reached the nerve structure itself. They consisted of injections of the ferro-cyanuret of sodium in some instances, and strychnia in others, into the subdural space of the spine. Careful examination of the nerve structure itself showed the presence of the ferro-cyanuret of sodium, for instance, in the lymph spaces of the nerve structure, and not in the vessels. If this be true, and if the observations upon the function and character of the cerebro-spinal fluid be upheld, namely, that it is practically a lymph fluid, is the result of the organic action of the brain itself, and therefore has free access to the lymph spaces of the cord and of the nerve structures emanating from the latter, these opening by more or less large stomata into the cerebro-spinal space, just as the large open lymph spaces of the diaphragm open into the peritoneal cavity, the fact that analgesia occurs so rapidly without the intervention of toxic symptoms due to the cocain itself can be easily explained.

DR. T. B. SPENCE said that everything that had been said was on one side of the question, and that, too, seemed rather strange; for prophets are arising on all sides to criticise the method and to foretell it will rapidly fall into disuse. It is worthy of note that most of these adverse criticisms are made by those who have had little or no experience with the use of the method. Wherever one has persisted in its use and overcome the first faults in technic that most of us have to overcome in most methods, a favorable report has been the result. He wished to emphasize the

fact that the men who are proclaiming its good results are those who have persisted in its use.

DR. A. H. BOGART said that there were one or two things he might speak of, one was that if a needle is introduced into the spinal canal and cerebro-spinal fluid is withdrawn, and 15 or 20 minims of a two per cent. solution of cocain, which has not been destroyed by sterilization, injected in its place, the patient will be anesthetized. We have seen absolutely no alarming results, and certainly it seemed to him that the spinal anesthetization has a wide field of usefulness. This had been more impressed upon him perhaps by his experience at the County Hospital. He thought the gentlemen who are connected with that institution would agree with him in this, that as a rule the patients there are bad subjects, for a general anesthetic, and he was always glad if he could avoid it in some way. If he could use local anesthesia he would do that. He did not care to have patients die on the table; and if cocainization of the spinal cord was going to help him out in this respect he was glad to use it. He was encouraged with what experience he had had to continue with its use. If it can be used in a large number of cases without danger, certainly the mortality from anesthesia is going to be reduced. If the danger is less than with ether, chloroform, or nitrous oxide there is an argument in its favor; and as a matter of fact there are many more deaths than we hear about from these anesthetics. His experience did not cover more than six or seven years, and he had seen more deaths from anesthetics than he wanted to. To diminish this mortality he would be glad to use cocain anesthesia or anything else.

Dr. Arthur H. Bogart read a paper on "The Treatment of Club-Foot," for which, with discussion, see *BROOKLYN MEDICAL JOURNAL*.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1273 Bedford Avenue.

Dr. Stephen H. Lutz has removed to 551 Madison street.

Dr. Silas C. Blaisdell has removed to 500 Bedford avenue.

Dr. Charles G. Molin announces his removal to 184 State street.

Dr. Edward E. Hicks announces his removal to 295 Stuyvesant avenue.

Dr. R. B. Welton moved early in October to his new residence, 810 Union street.

The many friends of Dr. D. G. Bodkin are pleased to know that he is recovering after his severe illness.

The address of Dr. Charles D. Napier, after the first of November, will be 1273 Bedford avenue, two doors from his former residence.

Dr. Hallock R. Maine and Dr. Palmer Townsend have resigned from the Visiting Staff and Dr. W. H. Seymour from the Assistant Visiting staff of Kings County Hospital.

Dr. William E. Butler, of 113 Halsey street, announces to the profession that he has retired from general practice and will devote himself exclusively to surgery and gynecology.

Dr. J. C. Kennedy was present at the Garden City meeting. He has but recently recovered from the results of the severe accident he suffered while attempting to stop his runaway horse.

Dr. Philip A. Brennan has entered into partnership with Richard A. Rendich for the general practice of law at 375 Fulton street, this Borough, under the firm name of Rendich & Brennan.

The semi-annual meeting of the Medical Society of the State of New York was held at the Academy of Medicine, October 15th and 16th, closing with a reception on the evening of the latter day.

Dr. Walter Truslow has been appointed assistant orthopedic surgeon, Dr. Archibald Murray, assistant pathologist, and Dr. Henry M. Mills, assistant gynecologist, at the Kings County Hospital.

Mr. George A. Shepherd was recently appointed business manager of the *BROOKLYN MEDICAL JOURNAL*, Dr. F. D. Bailey being obliged by press of professional work to withdraw his very valuable assistance from the *JOURNAL*.

The deaths must be announced of Dr. George W. Delap, of 63 Herbert street, on September 13th; Dr. Thomas E. McCarthy, of 372 State street, October 3rd, and Dr. Samuel Edward Stiles, of 51 Greene avenue, on October 9th.

On August 14th, Dr. Edward J. Carroll was married to Martha A. Stoll, daughter of the late William W. Stoll. Dr. Frank Little was married August 29th to Jennie Louise Bronson, daughter of Mr. and Mrs. Eli Atwater Bronson, at Geneva, N. Y.

The profession is glad to hear that Dr. Earl H. Mayne has resumed practice. He has been sick since May, and returned about the first of October from the Clifton Springs Sanitarium and Lake George, where he spent the summer.

The eighteenth annual meeting of the New York State Medical Association was held at the Academy of Medicine October 21st, 22nd, 23rd, and 24th. Drs. Henry H. Morton, L. A. W. Alleman, and E. H. Squibb, of Brooklyn, read papers. The annual dinner took place on the evening of the 23rd.

On one of the tickets at the coming election Drs. John Harrigan and Charles J. Pflug are nominated for coroners. As there are no physicians on the other ticket for that office, and medical men generally believe the position should be held only by one of our profession, they should receive the vote of every doctor in Brooklyn.

At the twelfth annual meeting of the Long Island Throat Hospital, the following officers were elected for the ensuing year: President, C. T. Schondelmeier, M.D.; first vice-president, T. M. Buckley, M.D.; second vice-president, T. M. Hewett; counsel, Judge A. H. Dailey; treasurer, W. J. Wheeler; secretary, D. Morris Woolley, M.D.

Dr. Jacob Fuhs was presented in September with a loving cup in commemoration of his twenty-five years of faithful service at St. Catherine's Hospital. Dr. V. J. Klein made the presentation

in behalf of the Visiting Staff. The sisters presented him with an easy chair, handsomely ornamented. He also received a large bouquet from two little girls, and following this a collation was served.

The Associated Physicians of Long Island held their eleventh regular meeting at Garden City, October 19th, going and returning by special train, generously provided by the Long Island Railroad. Dr. L. G. Baldwin presented gynecological specimens, discussion being opened by Dr. J. O. Polak. Dr. Sherwell read a paper entitled, "A Few Remarks on Diseases of the Skin with Relation to General and Special Therapy," which was discussed by Dr. J. M. Winfield. The closing paper was on "Management of Cerebral Hemorrhage," by William Browning, M.D., Dr. A. C. Brush opening the discussion. Following the scientific session, 110 members and invited guests enjoyed the dinner at the Garden City Hotel. Dr. L. N. Lanehart, of Hempstead, presided, and the following were called upon to speak: Dr. Matthew D. Mann, of Buffalo; Judge Gaynor, Mr. W. F. Potter, general superintendent of the Long Island Railroad, and Drs. A. L. Ranney, G. R. Fowler, H. A. Fairbairn, and William B. Gibson.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

ESSENTIALS OF REFRACTION AND OF DISEASES OF THE EYE. By Edward Jackson, A.M., M.D., Emeritus Professor of Diseases of the Eye in the Philadelphia Polytechnic. Third edition, revised and enlarged. 12mo., 261 pages; 82 illustrations. Philadelphia and London. W. B. Saunders & Co. 1901. Cloth, \$1.00 net.

In this edition the work has been carefully revised and very much enlarged, the contents being more complete and more symmetrical than was possible in the earlier editions. The injuries of the eye and the ocular symptoms and lesions of general diseases have now been given a consideration proportioned to the great importance they assume in the work of the general practitioner. There has been added also an account of the application of the tests of vision required in the army, navy and railway service.

This work has long since proved its usefulness to the beginner in ophthalmic work, to the student, and to the busy practitioner. Dr. Jackson,

its author, is well known as a successful teacher. The entire ground is covered, and the points that most need careful elucidation are made clear and easy.

Anything from Dr. Jackson's pen is always heartily welcomed, and the work under consideration is not an exception.

One important feature of this compend is the space given to the consideration of the relation between the eye and general diseases. This is of much practical interest.

JAMES W. INGALLS.

UTERINE FIBROMYOMATA; Their Pathology, Diagnosis and Treatment. By E. Stanmore Bishop, F.R.S.C., England. With 49 illustrations. Philadelphia. P. Blakiston's Son & Co. 1901. Front., xii., 13-323 pp., 8vo. Price: Cloth, \$3.50 net.

The execution of this work, typographically and in its illustrations, is excellent. It is typically English—written from their standpoint—inculcating their methods. Some few American authors are quoted, notably Kelly, Penrose, and Baldy. It is surprising how some authors quote from others to a degree which divests their work of that charm which comes from personal experience and personal conviction. The teachings are sound and will commend themselves to confidence. Baer's and Kelly's operation for abdominal hysterectomy for fibroids is mentioned and commented upon. Baer's is accorded the honor of being at this time highly satisfactory.

The directions for after-treatment are somewhat cumbersome though very properly they accord the patient the privilege of assuming the most comfortable position—a matter of no little importance. The author advises using morphine to control pain after operations, which has its advantages and disadvantages.

THE MEDICAL DIRECTORY OF NEW YORK, NEW JERSEY, AND CONNECTICUT.

Published by the New York State Medical Association. Volume 3. 1901. 940 pp.; 12mo. Price: Cloth, \$2.50.

Each issue of this admirable directory shows an improvement over its predecessor. The present volume contains the names of 12,644 physicians, of which number 5,579 are credited to the greater city of New York, as follows: Manhattan and Bronx, 3,991; Brooklyn, 1,410; Queens, 118; Richmond, 60. In addition to the lists of physicians, the Directory contains lists of the Medical Societies, Hospitals, Charitable Institutions, Medical Colleges, Municipal and State Health Laws, etc., of each State. A directory of the National Medical Societies, with list of their officers, etc., is appended. Different colored paper is used for each State, a minor detail which greatly facilitates ready reference. We know of no other directory which so thoroughly covers the field or which contains so many points of merit.

TEXT-BOOK OF GYNECOLOGY. Edited by Charles A. L. Reed, A.M., M.D.

Illustrated by R. J. Hopkins. New York. D. Appleton & Co. 1901. xxv. 900 pp. 8vo. Price: Cloth, \$5.00.

A new text-book by another author invites the notice and attention of the profession. The topic is a familiar one, the author a gentleman of

brilliant attainments, and a gynecologist of established reputation, who, from knowledge and experience, can speak with authority.

The aim of the editor seems to have been to combine that which was best in one volume. It is not the work of a single individual, but the hand of the author is seen in every department of the work. It seems to have been his aim to deal with the various subjects directly and concisely. And in this his success cannot be doubted. It is the composite work of many minds, but in its completeness it shows concentration necessary to a well-rounded treatise. The work is fully abreast of the times and will take rank among the best text-books on the subject. The typography and illustrations leave nothing to be desired. C.

A TEXT-BOOK OF THE DISEASES OF WOMEN. By Henry J. Garrigues, A.M., M.D., Gynecologist to St. Mark's Hospital in New York City, etc. 756 pages, with 367 illustrations. Third edition; thoroughly revised. Published by W. B. Saunders & Co. Philadelphia.

The first and second editions of this work have won for the author a foremost place in the rank of instructors in this branch of medical science.

The announcement of a third edition, thoroughly revised and up-to-date in its reading matter, with some new illustrations, will be welcomed by all the friends made by the earlier editions, and good news to any one who wishes to have a practical working guide in his own library. The chapters on Development, Anatomy and Physiology of the generative organs, if carefully read, will enable the reader to recognize the slightest deviation from the normal condition of those parts and help him to acquire that precision in diagnosis which is characteristic of the gynecologist, and will prepare him for a more intelligent consideration of the proper therapy.

FREDERIC J. SHOOP.

TECHNIQUE OF SURGICAL GYNECOLOGY. Devoted exclusively to a description of the Technique of Gynecological Operations. By Augustin H. Goelet, M.D. New York. International Journal of Surgery Co. 1901. 340 pp. 8vo. Price: Cloth, \$2.00.

The author has brought out many points in detail work for which one may search in vain in most of the books on gynecology, making it a very handy volume for ready reference. The chapter on the Preparation of the Patient emphasizes many good things often overlooked in our haste to get the patient ready, though possibly the author leans rather too strongly towards hypercatharsis; a week is pretty long in most cases to be used in such preparation.

The illustrations are clear and very good. The chapter on the After Care of the Patient is well written and to the point, and will prove to be as interesting and instructive to the nurse as to the attending physician.

FREDERIC J. SHOOP.



LOUIS BAUER, M.D., F.R.C.S.

THE BROOKLYN MEDICAL JOURNAL

Published Monthly under the supervision of the Medical Society of the County of Kings.

ENTERED AT BROOKLYN, N. Y. POST OFFICE AS SECOND CLASS MATTER.

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VOL. XV, No. 12.
WHOLE No. 168.

} BROOKLYN, N. Y., DECEMBER, 1901.

{ Single copies 25 cents
{ \$2 a year, in advance

ORIGINAL ARTICLES.

No paper published or to be published elsewhere as original will be accepted in this department.

A NEW PROCEDURE FOR THE RADICAL CURE OF UMBILICAL HERNIA.

H. BEECKMAN DELATOUR, M.D., BROOKLYN.

Read before the Medical Society of the County of Kings.

Among the various forms of hernia there are probably none that give the surgeon more trouble than the umbilical, especially when strangulated. The mortality from this particular operation has been very high, principally because of the length of the operation necessary for its relief, many cases requiring resection of the bowel and omentum.

Hernia of this variety is usually large and subject to attacks of local peritonitis. This causes adhesion of the contents to the sac. While the transverse colon may be dragged by the omentum into the sac the small intestine is more frequently found involved. It is the strangulation of the small intestine, especially at its upper portion, that is responsible for the rapid appearance of vomiting.

The operation ordinarily described for the relief and cure

of these cases is to expose the sac, free the contents from the sac wall, resect or return them to the abdominal cavity, excise the sac and close the abdominal wall either by layer or through sutures. This operation is very difficult, requires a good deal of handling of the contents and takes a long time to perform. As these patients usually take anesthetics badly and the manipulation of the intestines favors the recurrence of vomiting, any procedure which will avoid these is to be welcomed.

The operation as modified to overcome these objections is as follows:

An elliptical incision is made about the base of the tumor through the skin and subcutaneous tissues down to the sac, the sac is then freed to the ring, an incision is now made through the abdominal wall in the median line about an inch or an inch and a half below the edge of the ring and the peritoneum opened. The finger is then introduced and swept around the ring, *within the abdomen*, to be sure that there are no adhesions and then with a pair of scissors the incision is carried on either side of the fibrous ring to a point in the median line an inch or so above the upper limit of the ring. This removes the sac with its fibrous neck or rings, and its contents unopened. We have now to deal with these; the ring of hardened tissue forming the neck of the sac may now be incised so as to allow the examination of its contents. The omentum should be separated as far as possible and then ligatured and cut away; the intestine is to be treated according to its condition, if healthy returned and if gangrenous resected, an anastomosis made and the bowel then returned.

The closure of the abdominal wall is also important and should be done as follows: First the peritoneum and the posterior sheath of the rectus should be sewn with a continuous catgut suture, next the edges of the rectus, which were exposed when removing the sac, and its anterior sheath should be united with chromicized catgut and the skin edges by a subcuticular suture of silk.

The advantages of this operation are:

1. There is a considerable saving of time and much less handling of tissues.
2. It takes away from the abdominal cavity the contents of the sac until they have been inspected so that gangrenous intestine or omentum is not necessarily handled. If the intestine is gangrenous it can be resected without being withdrawn from the sac. The same is true of omentum.

3. It gives a firm closure of the wound with the tissues approximated in proper layers.

This operation I have successfully carried out, including a resection of 18 inches of intestine.

THE OVARIAN PLEXUS AND ITS CONTROLLING INFLUENCES.

BY W. L. CHAPMAN, M.D., AND LEWIS H. FOOTE, M.D.

A Preliminary Paper.

Read before the Medical Society of the County of Kings Sept. 17, 1901.

Certain clinical phenomena occurring in labors associated with various forms of ovarian disease have led the writers of this paper to a fuller investigation as to the underlying causes which interfere with the normal functions of the uterus.

Theories as to causation can be properly based only upon an section, physiological experimentation and clinical observation.

The views expressed in this paper are based upon minute dissection, physiological experimentation and clinical observation.

Two dissections were made. One upon a virgin aged twenty-five, and the other upon a multipara aged thirty-five, who died in the fifth month of gestation.

Anatomy.—The ovarian plexus is homologous to the spermatic plexus of the male. Its derivation is from the renal and upper aortic plexuses. The fibers of origin accompany the ovarian artery, lying upon its outer side, until the infundibulo-pelvic ligament is reached. At this point the nerve trunks leave the artery and, bending at nearly right angles, pass horizontally between the folds or layers of the broad ligament. The artery in its course passes straight downward, piercing the fold of the ligament, and then curves upward to a point just below the hilum of the ovary. Here it gives off numerous branches to the ovary, and then passes along beneath the Fallopian tube to the corner of the uterus, supplying branches to the tube in its course. At the corner of the uterus, it anastomoses with the uterine artery and gives off numerous branches to the body and fundus of the uterus. It also gives off a branch to the round ligament, which

passes downward into the substance of the ligament to the internal inguinal ring, where it anastomoses with the funicular branch of the superior vesical artery.

It is at the point where the ovarian artery gives off its branches to the ovary, that the nerve trunks rejoin it and spread out into a network of fibers with numerous ganglia, forming the ovarian plexus. From the hilum of the ovary, the larger branches of the plexus take the course of the artery lying above its upper surface, between the artery and the tube.

The plexus distributes its branches to the ovary, broad ligament, round ligament, Fallopian tube, body and fundus of the uterus.

The branches to the ovary enter it at the hilum, with the blood vessels, and, piercing its substance, terminate in the *membrana granulosa* of the Graafian follicle.²

Some of these fibers of the branches to the broad ligament are lost in the tissue of the ligament while others communicate with branches from the uterine plexus, forming what some anatomists describe as the utero-ovarian plexus.

The branches to the round ligament accompany the ligament through the inguinal canal terminating in the labia and clitoris.³

The branches to the body and fundus of the uterus penetrate the substance of the organ and terminate in two plexuses, the one in the muscular substance and the other in the submucosa, similar in distribution to the plexuses of Meissner and Auerbach, found in the walls of the intestines.

The branches to the tube penetrate its substance, and, we believe, terminate in a network of fibers similar to those in the uterus.

In regard to the relations of the ovarian plexus, there is one point we would emphasize on account of its surgical importance. As before stated, the plexus lies above the artery, between it and the ovary and the tube. In the normal state, the ovary rests directly upon the plexus, but if traction be made upon the ovary, it can be raised above the plexus to the distance of about one-half inch. This fact is noted in order to draw attention to the possibility of removing the ovary without destroying the plexus. It is more than probable that the retention of this plexus will more certainly preserve the sexual appetite, and minimize the nervous disturbances following the operation.

In concluding the anatomy of the ovarian plexus we insert

here a diagram representing the portion of the uterus supplied by the ovarian plexus.

Menstruation.—While it is not our intention to deal extensively with menstruation and its causation, we wish to call attention to certain points relative to this peculiar process, and the nerve supply to the uterus.

The structural changes which take place in the endometrium during menstruation are limited to the body and fundus of the uterus,⁴ or to that portion receiving its nerve supply through the ovarian plexus. Without going into an extensive description of these changes, they may be briefly classified as: (1) Vaso-motor.



(2) Destructive. (3) Reconstructive. These three changes are the result of trophic nerve action.

Vaso-motor changes, wherever they occur, are the result of sympathetic nerve action.

Destructive and reconstructive changes in any organ are the result of catabolic and anabolic trophic nerve action⁵

In brief, menstruation is a function of the uterus and is under the control of a nerve supply, as are all other functions. The only point we wish to make, in this connection, is that the nerve supply is derived through the ovarian plexus.

Besides these anatomical relations between the ovarian plexus and menstruation, there are certain clinical phenomena which indicate that pathological conditions which affect the ovarian

plexus disturb the uterus in its function of menstruation and parturition.

Two of the chief diagnostic features in diseases of the ovaries and tubes are disturbances of menstruation and disturbances of the nervous system.

In every case of menorrhagia or metrorrhagia which presents itself, we should make an examination of the ovaries and tubes in search of the cause. The causative relation of ovarian disease and menstrual disturbances seems clear when we recall the fact that any inflammatory condition of the ovary or tube is accompanied by inflammatory changes in the surrounding tissues, agglutination of the parts, including the ovarian plexus, with the ovary and tube; in this way it produces an irritation in the plexus which is propagated to the terminal plexuses in the uterine walls.

Irritation of the ovarian plexus may be produced by more remote conditions. Renal calculi and floating kidney sometimes act as a cause in producing metrorrhagia. The irritation in the renal plexus is conveyed to the ovarian plexus by reason of its close connection with the former through its fibers of origin.

With this brief reference to the influences of the ovarian plexus upon menstruation, we will pass on to the main subject of our investigation.

We hope in a subsequent paper to deal more fully with the subject of menstruation.

In order to illustrate the influences exercised through the ovarian plexus upon parturition, we here record a few clinical cases.

CASE I.—Mrs. M., aged twenty-six years, had been under our care for nearly two years suffering from ovarian disease. Menstruation was excessive and irregular, occurring sometimes every three weeks, and sometimes every two, never having a full intermenstrual period of twenty-eight days. The flow lasted from seven to eight days, and while there was little pain accompanying it, it was frequently necessary for her to remain in bed to lessen the flow.

Examination showed both ovaries to be enlarged, prolapsed and tender. Their removal had previously been advised by a number of physicians, but the operation was refused.

In July, 1895, she became pregnant. The entire course of her pregnancy was attended with dragging pains in the back and loins. Vomiting persisted until term.

On April 15, 1896, labor began. The pains were frequent and

severe, but colicky in character and of short duration. On the morning of the 17th, or after labor had continued for about forty hours, the os was dilated only sufficiently to admit two fingers. The pains had steadily increased in severity, but without any change in character, although morphine and chloral had been given a number of times. As she was becoming exhausted, chloroform was administered, the os dilated with the hand, and delivery effected with the forceps.

The pelvis was roomy, presentation L. O. A. and the child a male weighing eight pounds.

Recovery after delivery was slow. There was no lactation. The pains in the back and loins continued. The uterus remained subinvolved.

In November, 1896, both ovaries were removed by the late Prof. Skene. They were found to be cystic and inflamed.

CASE II.—Mrs. W., aged twenty-two years, began menstruating at the age of fourteen. Menstruation was irregular, profuse and painful. The onset of each menstrual flow was accompanied by attacks of hystero-epilepsy.

Examination showed the left ovary to be enlarged and sensitive. The examination brought on an attack of hysteria.

Early in September, 1897, she became pregnant. The first four months were attended by almost incessant vomiting. At the end of the fourth month, the vomiting lessened, although the morning sickness persisted until term. From the beginning of the fifth month she suffered from pains in the back and loins, with darting pains in the labia, which were markedly congested. During the two last weeks of pregnancy she was unable to walk at all.

Labor began June 5, 1898, at about 5 A. M. The pains were frequent and severe, but colicky in character and of short duration. There was continuous pain in the back, but the contractile pains occurred about every two minutes, and their duration was but about twenty seconds. Labor continued in this manner until 6 P. M. of the following day, or about thirty-seven hours. At this time the os would admit but two fingers. She was now in an exceedingly hysterical condition, with a pulse of 120. After giving $\frac{1}{10}$ grain of strychnia sulphate hypodermically, chloroform was administered, the os dilated and delivery effected with the forceps.

In this case the pelvis was roomy, the presentation L. O. A., and the child, a female, weighed seven and three-quarter pounds.

Recovery after delivery, if it may be called a recovery, was slow. She remained in bed four weeks and it was another four weeks before she could leave her room. At the end of the four weeks in bed, the fundus of the uterus could be felt above the pubes, showing a marked degree of subinvolution.

The pains in the back and loins continued. The hysteria increased and she dragged along as a physical wreck until January 5, 1899, when there occurred a mild attack of pelvic peritonitis which lasted from the 5th to the 20th day of January. On February 2, 1899, Dr. McNaughton removed both ovaries, which we here present. Their condition was cystic and inflammatory. Recovery after the operation was rapid and uneventful, and she is now in excellent health, having had but one attack of hysteria since the operation.

CASE III.—Mrs. L., aged twenty-five years. Confined April 1, 1899. We had never seen this patient previous to her labor, the case having been referred to us by another physician. Labor began on March 30th, about 6 A. M. The pains were frequent and nagging in character, but not attended by much suffering. Labor continued in this manner until 6 P. M. of April 1st. The pains had steadily increased in severity, but without any change in character. At this time the os would scarcely admit two fingers, and there was no bag of waters presenting. Chloroform was now administered by the drop method, in the hope of changing the character of the pains. After keeping up the chloroform for two hours without accomplishing much, the os was dilated with the hand and delivery effected with the forceps.

In this case the pelvis was roomy, presentation L. O. A., and the child, a male, weighed eight and one-half pounds.

This case differs from the others in that she was not hysterical but, on the contrary, extremely phlegmatic.

Three months later we were again asked to see this patient, as there had been almost a continuous bleeding since her delivery. Menstruation previous to her pregnancy had been irregular, profuse and painful. Examination showed the uterus to be enlarged and retroverted. Left ovary enlarged and tender.

Removal of the ovary was advised and then the patient made the following statement: She knew that she had had ovarian disease for a number of years, because every physician that she had consulted had told her that one ovary was diseased and should be removed. She is a singer by profession, and had heard that

removal of the ovaries affected the voice. On these grounds she refused an operation.

CASE IV.—Mrs. O., aged twenty-one years, delivered April 5, 1901. Mrs. O. was first seen during the fourth month of her pregnancy, when she came to consult us regarding a dragging pain in her back and loins. She was unaware, at the time, of her pregnant condition. Menstrual history was as follows: Began menstruating at the age of seventeen. The first menstruation compelled her to remain in bed for three weeks, on account of the pain and excessive bleeding. Since then she had menstruated three or four times a year without any regularity. Each menstruation lasted about two weeks, being excessive and painful.

Pelvic examination revealed a four months' pregnant uterus and a greatly enlarged left ovary. The ovary felt firm to the touch, but was not very tender. Firm pressure upon it by bimanual examination produced only a dull ache with a feeling of nausea and faintness. An immediate removal of the ovary was advised, but the operation was refused.

Her pregnancy was not accompanied by much suffering. The pains in her back and loins persisted until term, but did not increase much, and there was no vomiting. Labor began April 2nd, about midnight. The pains resembled those described in the other cases, but they were not continuous. They would come on and continue for two or three hours, and then subside, with the exception of a dull ache in the back. Labor continued in this manner until midnight of the fourth, when the pains increased in severity and became continuous. The os was still undilated, admitting only one finger. One-third grain of morphine sulphate was administered hypodermically, accompanied by 15 grains of chloral hydrate by the mouth. After this she slept until 9 o'clock the next morning. On awakening the pains returned, but of the same colicky character. Morphine and chloral were repeated in smaller doses throughout the day, but the only apparent effect was a lessening of the acuteness of the pains. At 8 P. M. it was decided to terminate the labor. The os was still undilated, but as the patient had now been over sixty hours in labor, it seemed useless to wait any longer. She was accordingly chloroformed and delivered.

The pelvis in this case was roomy. The presentation L. O. A., and the child, a male, weighing seven pounds.

This case differs from the others in that there was no vomiting

throughout the pregnancy, and in her having an abundant milk supply. In the other cases there was no lactation.

There is one more point in the history of this case that is interesting. We kept the patient under chloroform for an hour before attempting delivery. During this time we were able to watch the contractions under the anesthetic. At the beginning of each contraction, the fundus of the uterus would sway to the left of the median line, or toward the affected ovary. As the contraction reached its maximum, the fundus would regain the median line, and as the uterus started to relax it would again sway to the left. It was observed that the left side of the uterus contracted more rapidly than the right side, and remained contracted after the right side had started to relax.

This patient is still nursing her child, and removal of the ovary has been postponed, although it has enlarged since the delivery, and the uterus is still subinvolved.

These four cases are sufficient to illustrate our point. They are selected cases for the following reasons: They were all young primipara. In all, the pelvis was roomy and the presentation normal. There was no mechanical obstruction to the progress of labor. In all, ovarian disease was known to exist at the time of labor, except in Case III.

The cause of the dystocia in these cases we believe to be as follows: As a result of the ovarian disease present, adhesions were formed around the fibers of the ovarian plexus. The state of irritability thus produced in the fibers, caused the portions of the uterus which they supplied to contract more rapidly than the rest of the organ, and also to remain contracted after the normal rhythm had subsided. This produced, in the body and fundus of the uterus, the condition known as sectional contraction. Sectional contraction interferes with the process of retraction. Retraction takes place during the period of relaxation occurring between the contractions, and in order for retraction to be normally progressive, it is essential that there be a complete relaxation of the uterus between the contractions.

It is the process of retraction which gathers up the slack (so to speak) in the uterine walls and maintains the advantage gained by the contractions, thus keeping the uterine walls contracted upon its contents. If the process of retraction be prevented, the tension upon the os is lost and it does not dilate.

During the first stage of labor, retraction is limited to the upper uterine segment, or the portion of the uterus above the ring

of Bandl. This, as we have seen, is the portion of the uterus supplied through the ovarian plexus.

During the first stage of labor the upper portion of the uterus thickens and shortens, while the lower portion is thinned and stretched until its resistance is overcome and the presenting part is allowed to descend.⁶ In brief, the first stage of labor consists in the upper uterine segment overcoming the resistance of the lower uterine segment, and if the nerve supply to the upper segment be defective, or in any way interfered with, its power is lost and it is unable to accomplish this act.

Besides these clinical and anatomical observations, the following experiments were performed:

Four cats were taken, as nearly as we could judge, in the last week of gestation. After etherization, the abdomen was opened and electricity applied in the following manner: (1) Positive pole on ovary and negative pole on mucous surface of vulva. (2) Positive pole on pelvis of kidney and negative pole on ovary.

Both Faradic and galvanic currents were employed, the current being generated from single-celled batteries.

In all these cases contractions of the uterus were produced, and in all instances the contractions were alike—that is, they were vermicular in character and began at the ovary and from there spread downward toward the cervix. The statement that the contractions started at the ovary may seem confusing, but in the pregnant cat there is no Fallopian tube. The tube becomes a part of the uterus.

In order to illustrate this more clearly, we here present the gravid uterus of a cat. This uterus contains six kittens, three in each corner, or rather three in each tube.

Experiments upon the lower animals are not always reliable when their results are applied to the human subjects.

Goltz,⁷ whose experiments have been confirmed by Langley and Anderson, located the center presiding over the sexual organs, in the dog, to be in the lumbar section of the spinal cord. He found that, by destroying the lumbar portion of the spinal cord in a bitch, neither heat, conception nor labor would take place.

These experiments leave little doubt that the generative organs in the cat and dog are controlled by a center in the lumbar portion of the spinal cord.

The existence of this center in the human subject is very questionable.

In the *Medical Record* of July 10, 1897, there is reported a case of labor in a patient with complete paraplegia below the sixth dorsal vertebra, the only peculiar feature of the case being the absence of pain. Similar cases have been recorded by Oliver, Hess, Lusk, and others.

These clinical observations point strongly against the existence of any center in the lumbar region of the spinal cord.

Langley⁸ and Anderson,⁹ in confirming the experiments of Goltz, found that the second, third, fourth and sometimes the fifth lumbar nerves entered directly into the formation of the hypogastric plexus, in the cat and dog. No such arrangement of the lumbar nerves exists in human anatomy. In the human anatomy the only direct connection between the spinal nerves and the pelvic sympathetics is through the third, fourth, and sometimes second, sacral nerves.

In the lumbar region the sympathetic ganglia lie farther away from the inter-vertebral foramina than in any other portion of the body, and the only connection between the ganglia and the cord is through the rami communicantes.¹⁰

Besides these clinical and anatomical reasons for doubting the existence of the lumbar center in the human subject, it is a well-recognized fact that in all animal life the greater the development of the brain, the more rudimentary become these accessory or automatic centers in the spinal cord.

Experiments are now in progress as to this center in other animals than the dog.

So far as our investigations have gone we have arrived at the following conclusion: That the ovarian plexus is the controlling nerve supply to the ovaries, tubes and uterus.

This view is held in contradistinction to the widely prevailing idea that the controlling factors are centered in the cervical ganglion of Frankenhauser.

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NOTES OF SOME FATAL CASES, AND ERRORS IN DIAGNOSIS.

BY L. GRANT BALDWIN, M.D.

Read before the Brooklyn Gynecological Society.

In asking you to consider some fatal cases with me, it is not with any desire to be unique in departing from the unwritten rule which is so constantly followed by surgeons not to report fatal cases, but rather to elicit your frank and free criticism as to the causes of death in these cases. It of course happens to all of us from time to time that cases die after operation or otherwise, when we are totally unaware of the causes of death. Occasionally it happens that a patient to whom we have given the most careful consideration in the matter of an examination of all the organs, and a complete and perfect operation has been done, and yet the case terminates fatally, and it is with reference to such cases that I will ask your attention this evening.

Case No. 1.—Mrs. H. Diagnosis, multiple fibroma. Patient aged thirty-seven, married eight years, no children, but abortion eight and one-half years ago. Had been complaining for three years. When she presented herself to me in September, 1899, her symptoms were pain in the right side for three years, worse for the past four weeks, and especially worse for four days. Menstruation had always been regular but scant, only for a day and a half; very little pain and never any clots. There was a desire to void urine when on her feet, and she was obliged to

rise two or three times at night. Appetite good, bowels constipated.

Physical examination revealed a large irregular mass filling the lower abdomen and pelvis, which was evidently attached to the uterus. All other organs as far as could be determined were normal. A diagnosis had been previously made by her family physician of empyema of the gall bladder, but I was unable to determine any evidence of such a condition. The operation was done about ten days later by my usual method, a supra-vaginal amputation being done. The tumor was made up of one central mass, which involved the body of the uterus, and six other smaller masses, ranging in size from a hen's egg to an orange, the entire weight being $4\frac{1}{4}$ pounds. There were no complications, and the operation was finished somewhat within one hour. The gall bladder was found normal.

My usual method of moving the bowels was followed, 10 gr. of calomel being given on the evening of the operation, followed by epsom salts next morning, or twenty-four hours after the operation. At six o'clock that evening, the bowels were moved by enema. Several actions were secured during that night, and the next morning, or forty-eight hours after the operation, there was a normal temperature and pulse, a flat abdomen and perfect morale. During the next or second night an acute dysentery supervened. By the next morning, the passages were made up mostly of blood and mucus, and despite my best efforts, which included internal medication and rectal irrigation, a painstaking consideration of the injecta, the patient died two days later, never having had a rise of temperature above 100° F., with no distention of the abdomen and with but little elevation of the pulse rate, until a few hours before death.

This is the first death that I have ever had from this cause, and I am totally unaware how to account for it. An interesting point in connection with the case is the lack of menstrual pain, menorrhagia or metrorrhagia.

Case No. 2.—Mrs. G. Diagnosis, large uterine fibroma. The patient was fifty years of age, a native of Germany, the mother of four living children, youngest eighteen years of age. She had had no abortions. She had noticed enlargement of the abdomen for twenty-two months. At the time I saw her in August, 1900, she complained of the swelling, and pain in the abdomen, back-ache, and shortness of breath from pressure. At that time she had not menstruated for seven weeks. Prior to this time menSTRU-

ation had occurred from fourteen to twenty-one days; she flowed from three to eleven days, with little pain except a backache; had a constant desire to urinate for the previous three weeks. Appetite and digestion good; always constipated.

Physical examination revealed an enlargement of the abdomen one and a half times that of a pregnancy at full term, with a diagnosis as above. Operation one week later, after a careful examination of all other organs of the body with a negative result. The operation was uncomplicated in any way, there being no adhesions, and except for the size of the tumor was perfectly simple. A supra-vaginal amputation was done. The tumor was undergoing myxomatous degeneration. Its weight was 16½ pounds. The operation consumed an hour and eight minutes. The most scrupulous care had been taken in the preparation of the patient and her environment, to secure the most perfect aseptis. She was put to bed at 10.15 A.M. At 12 o'clock her temperature had risen to 101½° F., with a pulse of 110, with a dry hot skin, accompanied by an unusual amount of thirst and restlessness. By 6 o'clock that evening her temperature was 104° F. and pulse 120. At midnight, temperature 105½° F., pulse 140. At this time the patient was becoming stupid. She protruded her tongue with difficulty but in a straight line. The kidneys acted, 10 ounces of urine having been drawn by catheter at that time. It contained no albumin. There was no paralysis; the pupils were normal and responded equally to light, and the only pain complained of was a severe occipital headache. There was no deferescence of temperature or lowering of pulse rate, until 8 o'clock in the evening of the second day, at which time the temperature dropped to 103° F. and the pulse to 90. The patient had now for some hours been deeply comatose and could be roused to take fluids only with the greatest difficulty. The kidneys continued to act, and except for an extreme restlessness there were no other symptoms. She died at 12.15 o'clock, or thirty-eight hours after the operation was completed.

Certainly the symptoms began entirely too early to be from a septic cause, and I conclude that the cause of death was an embolism somewhere in the base of the brain, probably in the floor of the fourth ventricle, which interfered with the thermogenic centers.

Case No. 3.—Small ovarian cyst. Mrs. L., aged twenty-eight, born in the United States, married four years, never pregnant; had been complaining for eight years. She came for pain in the

right side, backache and bearing down; had menstruated at thirteen, regularly for a time; never much pain; flowed for five days and scant in amount. A constant yellow vaginal discharge; irritating. Suffered from indigestion and constipation. Examination of heart, lungs and kidneys, negative.

Physical examination revealed a mass in right side, size of large orange. Operation one week later, after the most careful preliminary treatment. The operation was simple in the extreme, the cyst was easily removed, and the pedicle was treated by suture. The appendix vermiformis was large, elongated, and chronically inflamed. It was removed. The left ovary contained a small cyst and was bisected, the healthy part being allowed to remain. The operation was completed within thirty minutes, and the patient put to bed in excellent condition. There was no vomiting after the ether, and apparently little or no shock. She died two hours later, within five minutes from the first untoward symptom, which consisted of marked cyanosis and a sudden failure of the heart.

The cause of death in this case, I am at a loss to state. It could not have been hemorrhage, because first, she died too soon; even had the ovarian artery been bleeding, death would not have supervened in so short a time and the symptoms would have been very different. The death certificate exhibited gave "shock" as the cause of death in the absence of my ability to certify to a more correct or scientific one.

Case No. 4.—Intestinal paresis, following removal of small ovarian cyst. Mrs. X., aged thirty-eight, married and sterile. She had been under my care on and off for three years, during which time we were aware of the existence of a small ovarian cyst. She had persistently refused operation, and I may say that I had not urged it, as it was of very slow growth and caused but little suffering. She presented herself in my service at St. Peter's Hospital this past summer, saying that she had decided to have her tumor removed. Otherwise than being very obese and a decided neurotic, she was in perfect health. On opening the abdomen, some few intestinal adhesions were found, but not to any marked degree. The operation was simple and easily completed, the only complication being a very fat abdominal wall, with very rigid recti muscles.

The usual routine was followed as to securing an action of the bowels, on the evening of the day of the operation, followed by Epsom salts and stimulating enemata the next day. There was no elevation of temperature other than a slight reactionary rise the

first day, but despite all my best efforts no passage of flatus or feces could be secured. No abdominal distention occurred until the morning of the third day. It then rapidly became extensive, and the patient died at the beginning of the fourth day.

It has always been my feeling that many of the cases said to have died from intestinal paralysis, due either to local or central causes, were really due to sepsis, even in such cases as the one reported, where there had been practically an afebrile condition. In this case, a few hours before death occurred, I reopened the abdomen in the vain hope of finding some obstruction that might be relieved, and to at least satisfy myself whether or not a peritonitis existed. The abdomen was perfectly free from fluid; there was absolutely no part of the intestines, large or small, that was not distended to its fullest caliber. There was absolutely no sign whatever of peritonitis, adhesions, or any other untoward condition. Therefore, I consider this a case of genuine intestinal paresis, whether due to local or central causes, I will not speculate.

One object in reporting this series of cases is, as I have said, to elicit a frank and unbiased criticism as to the causes of death, and also to emphasize the point as to how impossible it is to foretell the result of any intra-abdominal operation. In not one of these cases was there the slightest reason to fear a fatal result, and as far as I am aware, in the frankest statement of the facts connected with them, was there any blame to be attached either to the preparatory treatment, the operation, or the post-operative care. Were I to do any or all of them to-morrow, I cannot now see how I could guard against or prevent the fatal result.

The errors in diagnosis to which I briefly ask your attention relate to one condition only, or the differential diagnosis between two conditions, namely ectopic gestation and abortion before or by the twelfth week. During the last few months five cases of ectopic pregnancy have come under my care, all of which have been erroneously diagnosed, and in each instance abortion has been diagnosed, either as imminent or having occurred some days before. Three cases were curetted, one by myself and the other two by their family physicians. The other two cases were sent to me for curetting. One reason for these errors in diagnosis is, I believe, due to much of the text-book literature, the idea being still prevalent in the mind of the profession that this condition invariably causes the most extreme symptoms. I have taken occasion before this Society on a previous occasion, to speak upon this same

subject, and I should not venture to burden you with it again but for the fact of this considerable number of cases coming under my care in a comparatively short time. My feeling is that in many instances the mistakes have occurred as much through carelessness, however, as through ignorance or misinformation. These cases have been in every instance under the care of our best practitioners, who are, in my judgment, in no sense to be criticized.

The train of symptoms of the rupture as laid down in the text books, that is, the sudden, severe and appalling pain, accompanied by fainting (partial or complete), cold and clammy perspiration, sighing respiration, blanched skin and feeble pulse, have been observed by me in but one of all the cases of ectopic gestation that have come under my care. *It is true that the pain is severe and will as a rule be described by the patient as the worst pain she ever had, and as a very general thing does occur suddenly.* The other terrible symptoms mentioned are neither of constant, nor, as I have said, of frequent occurrence. I am perfectly aware that such cases do occur, but I am sure less frequently than the profession at large suppose.

It is not at all unusual for women after the first or interstitial rupture of the tube, due to ectopic pregnancy, to go about their household and social duties for days or weeks, until the final and complete rupture occurs, filling the pelvic cavity and abdomen with a quantity of blood; *and even after this has occurred, it is not at all unusual for them to so far recover as to be able to go about the streets, their houses and even to neighboring towns.* It is true that complete freedom from abdominal distress does not obtain, probably, after the first rupture.

The true condition in one of the cases mentioned, was discovered by a physician to whom she had taken her child for advice, she herself having supposed that she had aborted some weeks previously.

Time will not permit of a detailed account of these cases. To me, the lesson to be learned, is greater care in obtaining the menstrual history, for almost invariably have I found amenorrhœa to have existed for from three to eight weeks, in my cases seldom going beyond the eighth week without symptoms, irregularity in my experience, being a more constant accompaniment of tubo-ovarian inflammation. *The character of the pain is of the most importance,* and in several instances I have opened the abdomen on this symptom alone, when accompanied with the characteristic

amenorrhea, when I was unable by physical examination to make out the slightest abnormality in the pelvis. In considering the other symptoms, I am sure their importance has been exaggerated. The differential diagnosis of ectopic pregnancy from distentions of the Fallopian tube from other causes is equally difficult and in many instances impossible, but is not intended to be considered in this paper.

28 Schermerhorn Street.

DISCUSSION.

Dr. R. L. Dickinson: The question of intestinal paresis after operation is of great import. After extreme distention it is with great difficulty that the bowel regains its tone. I like very much the method of Dr. Byrne, who gives large doses of calomel, 20 to 30 grains, with strychnia, $\frac{1}{20}$ th of a grain, hypodermically, every two hours. It is interesting to note that even in slight patients, who weigh less than 100 pounds, this dose of strychnia may be taken every two hours for forty-eight hours before developing toxic symptoms. I saved one case by this treatment. The symptoms were very alarming and the distention extreme, following a condition in which two large ovarian cysts were very generally adherent. I remember a case of laparo-elytrotomy performed in 1884 by Dr. Charles Jewett, after which the distention was extreme. The patient was treated by sticking a small aspirating needle into the bowel at various points. This treatment was repeated two or three times at six or eight hour intervals. There was a remarkable relief of the distention, and the patient made a good recovery and was distinctly improved from the time the punctures were made. Nowadays, we reopen the abdomen and stick a knife into the intestine and let out the gas and then suture the wound carefully. In a recent number of the *Centralblatt f. Gynäkologic* (1900, page 1036) a report was made by Winternitz concerning Döderlein's Clinic, reviewing eight non-septic cases of ileus. A loop of bowel was raised well out of the wound, opened, and the fecal and gaseous contents pressed out as thoroughly as possible. The bowel was then sutured and replaced. Seven out of the eight cases recovered. Of three cases of ileus occurring as a symptom of septic peritonitis, all died after operation. Of course, operation is only resorted to after failure of enemata, stomach-washing, strychnia, etc.

THE BROOKLYN MEDICAL JOURNAL.

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EDITORIAL.

A REVIEW OF THE SURGICAL ASPECTS OF THE CASE OF PRESIDENT McKINLEY.

The report of the Medical Staff in attendance upon the late President McKinley has been given out and, in its scientific aspects at least, is before the profession for discussion. The latter, true to its instincts of justice, has refrained, with a few exceptions, from commenting upon the case until all the facts were placed before it. Where adverse criticisms have been made prior to the issuing of the report, these have not been favorably received by the profession at large, and, it is fair to say, have brought the reverse of credit to those who have uttered them.

Briefly stated, the case is about as follows: The illustrious patient was the subject of a perforating gunshot wound of the stomach, the missile entering the latter near the greater curvature, and emerging, as nearly as could be made out, at a point about opposite the wound of entrance. Its further course was not determined either at the operation or autopsy.

The wounding took place within the grounds of the Pan-

American Exposition at Buffalo, and the emergency hospital set up within the grounds was available for the immediate care of the case. Unfortunately the arrangement and equipment of this hospital was such as to adapt it to minor surgical emergencies only. The operating room was located upon the ground floor, with no overhead light, and the only available source of natural light was from windows upon one side, and that the west side of the building. The difficulties arising from insufficient light were further enhanced by the time of day at which the shooting took place, as the sun was low in the horizon, and the light failed almost completely before the operation was completed. The absence of a reception ward evidently necessitated placing the patient at once upon the operating table in the operating room, and there undressing him; else it is difficult to understand this somewhat unusual course of procedure. The difficulties of the operation were still further increased by the want of such important instruments as retractors. Even the small curved needle which was employed for suturing the opening in the posterior wall of the stomach was supplied from the pocket case of one of the surgeons present at the operation. Nor could the operator in the case be held responsible for the lack of suitable instruments, inasmuch as he was summoned to the exposition grounds without the slightest hint as to the reason for the call, the first intimation of which was given him as he entered the hospital, by another surgeon, who said to him, "The President has been shot and we are waiting for you."

The subsequent steps in the case are all set forth in the detailed report. In the light of the surgery of to-day it is difficult to conceive how any other course could have been pursued than that of immediate operation, particularly in view of the location of the wound, the probability that the stomach was involved, the fact that in all probability the latter contained food, and finally the fact that the patient did not fall, but remained standing or sitting for a sufficient time to favor leakage of the stomach contents; all of which considerations presented the positive indications for opening the abdomen at the earliest possible moment and repairing the damage done to the contained viscera.

The preliminary injection of morphine and strychnine had much to do with the promptness with which the patient passed under the influence of the anesthetic, as well as the fact that the operation was well borne. This, as well as other important pre-

liminaries to the contemplated operation, was attended to pending the arrival of the surgeon, who, in the absence from the city of the Surgeon-in-Chief of the Exposition, had been selected as the operator in the case. All of which goes to show that the necessity for prompt operative interference was not lost sight of for a single moment, and that even the short consultation spoken of in the report was more a matter of form and courtesy than of actual need, since there could scarcely be two opinions on this point. Indeed, one has yet to hear, from the medical profession the world over, a single word of adverse criticism upon this point from any whose opinion is entitled to respect.

The choice of an anesthetic was a consideration that required some thought, since in operations of this character many surgeons would have chosen chloroform rather than ether as being the most convenient and less likely to be followed by vomiting. The element of safety was certainly on the side of the latter, and the event proved that the choice was a wise one. The ether was well borne, and anesthetization was complete in nine minutes, facts which speak for a skilful anesthetist.

The usual rule of including the bullet wound in the incision was followed and with the result of finding a piece of cloth along the track of the bullet, and of coming at once upon the opening in the anterior stomach wall. Equally good judgment was displayed in enlarging the opening sufficiently to permit of digital exploration of the interior of the stomach, since only through this maneuver could the presence or absence of the missile in the stomach itself, or of food, be determined.

The choice of silk as suture material is mentioned only to be commended, and the usual method of a double row of practically continued sutures is looked upon by surgeons of to-day as ensuring a water-tight jointure of the serous surfaces with far greater certainty than the interrupted sutures of a decade ago, and still employed by many surgeons.

The absence of the missile in the stomach made it absolutely necessary to reach its posterior wall. In order to accomplish this in the most expeditious manner possible the omentum and transverse colon were drawn out of the abdominal wound and the gastro-colic omentum divided between two ligatures to the extent of about four inches. This very practical and rapidly executed expedient enabled the operator to bring the stomach into the operation wound, and gave ready access to the bullet wound in

its posterior wall, which was closed in the same manner as the anterior wound.

The use of a simple saline solution to flush the parts as they appeared in the field of operation was a precautionary measure, since the examination of the interior of the stomach disclosed the presence of considerable liquid, more or less of which must have escaped during the manipulation.

Taking all things into consideration the decision arrived at by the surgeons present, after satisfying themselves that the transverse colon had not been wounded, not to attempt to follow the bullet into the tissues behind the stomach, was a wise one. Most especially is the course followed to be commended when the age of the patient, and the fact that he was already suffering considerably from shock, are taken into account. Further, the evisceration essential to such a procedure must of necessity not only have increased the already existing shock, but have heightened the probability of infection.

There seems to have been some difference of opinion as to the necessity for drainage. One of the surgeons present was in favor of a gauze or wicking drain leading from the site of the wound in the posterior wall of the stomach. The operator, however, with the concurrence of the other surgeons, "decided against this, as being unnecessary."

Without question the decision arrived at was warranted by the intra-abdominal conditions as they existed at the close of the operation. So far as could be ascertained there had been no escape of stomach contents prior to opening the abdomen, and what little soiling had occurred during the manipulation had been promptly corrected by hot saline solution. The openings in the stomach had been closed in the most approved manner, there was no probability of the occurrence of hemorrhage requiring the presence of a tell-tale drain, the location of the wound of the stomach almost precluded injury to any other portion of the alimentary canal, and the utmost aseptic care had been exercised throughout. So far as the injury to the viscera was concerned, therefore, there could be no question as to the wisdom of omitting that which was unnecessary, and which might possibly prove harmful.

The only point which can possibly arise in connection with the question of drainage will turn upon its probable influence, had it been employed, upon the changes which took place in the tissues along the course of the bullet subsequent to its escape

from the stomach. In the light of the autopsical findings the suggestion forces itself upon one that the evil effects of the necrosis which occurred in the bullet track might have possibly been lessened by drainage, but whether drainage in an anterior direction would have served any good purpose is far from certain. He would be a bold critic who, in view of the favorable course pursued, would have made the assertion during the first week of the case that drainage should have been instituted, and even at the present time the inquiry as to where the drainage should have been made would be pertinent to such criticism.

The further steps of the operation call for but very little comment. The removal of tissue likely to become necrotic in the track of the bullet was followed by closure of the operation wound by silkwormgut sutures.

As to the cause or causes of death, there must necessarily be differences of opinion. In summing up the pathological findings upon autopsy it is stated, in addition to the gunshot wound of both walls of the stomach disclosed by the operation, that the superior aspect of the left kidney had been injured by the bullet. The other changes found consisted in "extensive necrosis of the pancreas; necrosis of the gastric wall in the neighborhood of both wounds; fatty degeneration, infiltration and brown atrophy of the heart muscle; slight cloudy swelling of the epithelium of the kidneys."

The extensive necrosis of the pancreas which, in all probability was an important factor in the cause of death, must have been due either to direct injury or occurred as an after-effect from infection. The necrosis of the gastric wall at the site of the bullet wounds is not so easily explained from the surgical standpoint. One thing at least seems certain: it was not due to any error of operative technique. Even the ligature and division of the gastro-colic omentum, which was made in order to gain access to the posterior wall of the stomach, cannot be held responsible for this complication, as has been suggested, for the reason that the blood supply to the stomach itself is complete and perfect without reference to the vessels of the gastro-colic part of the great omentum, the blood supply of which, the vasa epiploica, is derived chiefly from the arteria gastro-epiploica sinistra. In other words, the stomach does not depend to the slightest extent upon the vessels of the gastro-colic omentum for its blood supply, but rather the reverse, the blood supply of the omentum being derived from the vessels which supply the stom-

ach. That there was an almost complete absence of repair at the site of the sutures was evident; that this was entirely independent of the technique employed was equally apparent.

Pending the completion of the report of the bacteriologist in the case it would be manifestly improper to state a definite opinion as to the causes of the necrosis of the retroperitoneal structures. That the normal structures in the neighborhood of a pancreas the seat of extensive necrosis present similar although less advanced conditions those who have had experience in such cases will not hesitate to aver. How much this may have been favored by the traumatism to which the tissues were subjected by the passage of the bullet, or to what extent infection carried to these tissues may have lent its aid in bringing about the final result are questions which, for the present, at least, must remain *sub judice*.

GEORGE RYERSON FOWLER.

UNFOUNDED CRITICISM.

In matters medical, unscientific criticism is not for the public good. It is a source of discouragement to the worker and distrust to the patient. Time and again it has prevented the application of well tried and efficacious measures which would have worked for the preservation of health and the prevention of disease. It to-day militates against the universal use of some of the best means we have through the fear it has inspired in the public mind and that of the timid practitioner.

This class of criticism has become, of late, too frequent in the medical press. Its occasional appearance might be pardoned as an error of judgment, but its reiteration deserves no such mild term. It reached its climax in dealing with the case of President McKinley. The operation, treatment, bulletins and post mortem formed the subject of criticism, medical criticism, well calculated to cause the profession to blush. It strengthened the opinion in the minds of some that we are an unscientific lot and a pack of adventurers. Neither profession nor public were in possession of facts on which to base a sound opinion or make a forecast. That the attending staff were unprepared to express opinion or make prognosis was manifested by their official reports, which stand to-day a credit to their judgment. They very wisely, as

scientific men, decline even now with the clinical and post mortem examination at hand to fully state the cause of death. They were unable to examine several important organs, and thus the premises are incomplete upon which to rest a firm conclusion. Their position is in sharp contrast to that of their venturesome critics. What is revealed by record and evidence shows that they did rightly and well in every particular. They have nothing of their own doing to regret. Their procedures were based on fact and are unimpeachable. They would be repeated under similar circumstances. On the other hand, the critics' procedures were based on assumption and presumption, and their conclusions partook of the same quality as their premises and are not likely to be repeated. If these critics had come before medical bodies to discuss a case with so few data in hand they would have been silenced.

We hear occasionally, from the public a sneer at professional courtesy; that bearing toward a professional brother which is dictated by culture and education; that hesitancy to pass an opinion without a knowledge of the facts and the observer's interpretation of those facts. We are disposed to think that no one is benefited more than the patient by just such courtesy. The lack of it leads to machine work and mere commercialism and stifles the true scientific spirit.

Dr. Mann and his coadjutors deserve great praise for their exact work. They deserve it for their exhibition of that inspiring trait of character—courage in the face of danger and adverse circumstances. They deserve it for their adherence as a body to facts, not allowing themselves to be drawn into the region of prophecy. The unwary individuals who were allured into this paid a not unusual penalty and again illustrated that prognosis is an uncertain field, often a matter of sentiment and not of knowledge, "of heart and not of head." When the public force the physician into prophesying they must not expect infallibility, for the fountain of life is beyond him. Upon that conjunction "if" rests the fate of the medical prophet very much as does that of the forecaster in other fields. Quite as uncertain is the critic's position who rests his conclusions on conjecture and not upon knowledge.

HENRY A. FAIRBAIRN.

CORRESPONDENCE.

HALL MEMORIAL HOSPITAL.

PYENG YANG, Korea, February 19, 1901.

MY DEAR DOCTOR RAYMOND: "The Long Island College and Its Graduates" was received some time ago, and I read it with very great interest. Time passes swiftly, and it does not seem as if it were ten years since I came to Long Island. I have been in Korea over five years, but expect to return on furlough in 1902. While in Shanghai in 1898 I very unexpectedly met Dr. Selden, who was there on a visit from Canton. We had the pleasure of each other's company for several days.

Since I came to Pyeng Yang, four years and a half ago, I have had charge of "The Hall Memorial Hospital." Dr. Hall and I have about seven thousand visits yearly. In a land where there is practically no machinery, and only one railroad of twenty-seven miles length, you can see that we have very little major surgery. We have a good deal of minor surgery, such as abscesses, fistulæ, carbuncles, infected wounds, cysts, bone diseases. I have had several finger amputations, and one or two arm and leg amputations, also a number of iridectomies and operations for cataract. Our most common medical diseases are eczema, acne, scabies, tinea tonsurans, tænia solium, oxyuris vermicularis, ascaris lumbricoides, dyspepsia, rheumatism, phthisis, bronchitis, malaria in many forms, epilepsy, syphilis, scrofula and diarrhea and dysentery. We meet with these diseases every day. Seoul, the capital, is six days' journey from Pyeng Yang, due south. There is no medical man north of us, so we have a large radius. I can assure you that we are kept pretty busy most of the time. Of course our work is necessarily very crude; we have no trained attendants, and have to do most things ourselves. The people are ignorant and stupid, but in spite of all our difficulties a great deal of good can be accomplished in relieving the sufferings of the people. I am sending you by this mail a set of the native doctor's surgical instruments, thinking you might be interested in seeing them. I watched a man a short while ago perform an ovariectomy on a pig. The people say that if a pig does not grow as rapidly as it should, castrate or do an ovariectomy. In the case I saw there was no sign whatever

of antiseptics. The hair was cut off short with a dirty pair of scissors, and then with a sharp piece of broken crockery that was used as a substitute for a knife, two rapid incisions were made in the abdominal wall, laying the tissues bare down to the intestines. The dirty finger was then quickly inserted and the intestines pulled out and pushed aside, and, in a second, first one ovary, and then the other, was torn from its attachments. The intestines were then restored to their original place, and the incision sutured with an old dirty needle and native thread. Dry coal ash was then rubbed over the place of the incision, and the operation was completed. Three pigs were similarly treated, and in a few hours were as well as ever, and no bad after-effects resulted.

I have just written these few lines, thinking you would perhaps be interested to know where I was and the work I am doing.

Believe me to be, yours very truly,

E. DOUGLAS FOLIWELL.

NOTE.—The instruments above referred to have been donated to the Medical Society of the County of Kings.

PROCEEDINGS OF SOCIETIES.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section in Pediatrics.

WILLIAM A. NORTHRIDGE, M.D., EDITOR.

Regular Meeting, Friday Evening, March 8, 1901.

Dr. Elias H. Bartley in the Chair.

The scientific program consisted of a paper by Dr. W. M. Hutchinson on the modern production of vaccine virus as exemplified by the New York Board of Health plant, and illustrated by lantern slides.

Also a paper by Dr. F. A. Jewett on the use of vaccine and vaccination, its course and complications.

DISCUSSION.

Dr. W. M. Hutchinson: I have noticed that sometimes a vesicle appears as early as the second day, and then again is delayed to the twelfth or fifteenth day. I have sometimes seen a raspberry like excrescence; which after undergoing absorption leaves no scar. Is such a case protected? I have seen erysipelatous inflammation, delayed healing, ulcers and suppurating axillary glands follow vaccination.

Dr. Cardoza: I agree in the main with the gentlemen who have read these papers; but I beg to differ as to the safety of vaccinating a child three months old and as to vaccinating everybody every year.

Dr. H. N. Read: I believe that it is eminently proper to vaccinate a child at the second or third month. I think re-vaccination should be done at the tenth and twentieth years. I know of no case of variola following a successful vaccination in a child. Three vaccinations upon each person properly performed would eradicate the smallpox. It is amazing to know the number of people who are not vaccinated. The people should be impressed with the necessity of all children being vaccinated. The operation of vaccination is not void of all danger, and proper aseptic precautions should be taken. There is no pus in proper vaccine. I do not believe in the doctrine set forth here to-night of every year vaccination. As to the development of the vesicle, it occurs sometimes early and sometimes late.

Dr. H. A. Fairbairn: A question to Professor Read. If he was a father of a family consisting of a baby one and a half years old and children five and eight years of age respectively, and if the flower of this flock should develop variola unexpectedly, would he sit down to consider questions of age, dentition, height, breadth or anything else? No. He would vaccinate that flock, himself included, with an expedition and thoroughness that would astonish you. Why? Simply because the result of the operation is the only positive answer as to its needs. His directions may hold in the days when the disease is not prevalent. In the face of it, vaccination is the only safeguard. As to the dangers of the operation, they are nil if ordinary surgical care and cleanliness are enforced. Dr. Hutchinson has demonstrated that the Board of Health of this city has followed these out to the letter in the preparation of the vaccine; or, in other words, that the vaccine is

pure in every sense of the word. It rests with the practitioner, the vaccinator and the patient to see to it that defilement does not occur. To Dr. Cardoza comes the retort that if other matter is introduced the responsibility for it comes very near the practitioner and patient. Away with the osteopathic, Christian Science fanatical cry as to the dangers of vaccination. Clean virus, clean operator, clean instrument, clean arm and protected wound will give good results always and nature's protection from the dread scourge of the earth.

Dr. Joseph H. Hunt: I am interested to know what constitutes a proper vaccination. I am sure there are in the schools numerous children who have presented certificates stating that they have been properly vaccinated who have not been vaccinated at all.

Some physicians are criminally careless or ignorant in the matter of protective vaccination. In a successful vaccination there will be found a ring with a depressed center. Numbers of physicians are giving medicines to protect against the smallpox and then on the strength of this, giving a certificate that the child is properly vaccinated. I have here some plates of vaccination which I thought might interest you. They are copies of water colors from Jenner's cases. This paper is an autograph letter written by Jenner.

Dr. W. A. Northridge: There is no cure for the smallpox. But in vaccination we have a preventive that is better than cure. There is no doubt but that the immunity secured by vaccination lessens as the years elapse; therefore re-vaccination is imperative. It is my custom to advise a second vaccination at the seventh year. I have never seen any grave ill effects follow vaccination. I have seen some deep ulcers. If the technique is perfect, the results will be good. The field of operation should be well washed; the supply of virus should be above reproach and fresh and the scarifying instrument should be sterile. Does the pink papule protect? Some very good authorities claim that it does. Humanized vaccine should never be used, and thus all danger of transmitting syphilis or leprosy is removed. By choosing vaccine from a laboratory where the technique is such as has been described here to-night, the danger of tubercular infection is avoided.

Dr. Benjamin Edson: I would like to ask if one cicatrix protects as well as two, ten or twelve? Certificates should only be given after an examination of the arm. The scar with a depression should be looked for. I believe some of these

large, seared scars do not show a proper vaccination. I vaccinate myself once a year and I suppose I am immune; but I have no great scar. I have seen the currant mark and have found a vaccination done right afterwards to "take." As regards immunity, I have a friend of large experience who tells me that one successful vaccination is no indication that the person is immune.

Dr. F. Shaw: Just one word in connection with the technique. Light scarification with no appreciable loss of blood and then the virus thoroughly rubbed in until dry gives the best results.

The Chair: I would like to ask what proportion of the emigrants are vaccinated before entering? If a man can give a tablet triturate and then give a certificate of vaccination, I think it is time our Committee on Public Health should look into it. We should see that the children are all vaccinated before the age of three years. I think we should insist on seeing the arm before giving a certificate. I have never seen a death from vaccination; I have seen enlarged glands.

Dr. W. M. Hutchinson: I apply a sterile gauze dressing after vaccination and remove it on the sixth day, renewing it if necessary. I do not believe that multiple scarification is necessary.

Now a little bit of history. It is generally understood that Doctor Martin first introduced bovine virus into this country. But the fact is that Doctor Raymond sent it from France, and that which he introduced was the first used in this country.

Dr. F. A. Jewett: I do not know that I have anything to add. In answer to the gentlemen, I do believe in vaccinating every year. There is no harm in it and no danger. There is no pus, no tuberculosis, no extraneous matter in properly prepared virus. Vaccination prevents the smallpox many times. I have seen a case of malignant smallpox in a vaccinated person. The period of immunity is uncertain. It is not necessary to vaccinate under the age of five years more than once. There is no advantage in a great number of scarifications. The appearance of the scar is not always reliable. The only way to know if you are properly protected is by vaccination. Occasionally vaccination will take while the variola is in progress.

MEDICAL SOCIETY OF THE COUNTY OF KINGS.

Section in Pediatrics.

WILLIAM A. NORTHRIDGE, M.D., EDITOR.

Regular Meeting, April 12, 1901.

Dr. Jerome Walker in the Chair.

The scientific program consisted of a paper by Dr. William F. Dudley on post-nasal adenoids, illustrated with lantern slides; and observations on acute middle ear affections in children by Dr. John E. Sheppard.

Dr. Sheppard first called attention to the bearing of two or three anatomical peculiarities upon the examination of the ear, viz.: first, the fact that the angulation of the external auditory canal required, in order to facilitate examination in infants and very young children, the holding of the auricle outward, *downward*, and backward, as contrasted with adults in whom it should be held outward, *upward* and backward; second, the fact that in infants, owing to the much more horizontal position of the tympanic membrane, the posterior superior quadrant may be more easily reached, and even injured, by the careless introduction of a small speculum too far into the canal; and third, the fact, seemingly often overlooked, that by middle ear we mean tympanum, Eustachian tube, and mastoid cells, and not tympanum alone. He also urged a more general recognition of the distinction made by aurists between catarrhal and suppurative otitis media.

There seems no doubt but that a very large proportion of the middle ear diseases of childhood—and this we are beginning to believe is true of the deafness of adult life—may be traced directly or indirectly to the presence of adenoids in the nasopharynx in early life, even though they may later disappear. It is important, too, to remember that, to produce middle ear complications, they need not necessarily be so large or so located as to interfere with nasal respiration. Such a position of the growth as to obstruct more or less the Eustachian tube causes insufficient ventilation of the tympanic cavity, whereby the tissues



WILLIAM THOMPSON RUST, A.M., M.D., LL.D.

therein lose much of their resisting power, and infective inflammation more easily than should be the case leads to suppuration.

If infection does not take place, we have then the typical appearance of a membrana tympani which goes with an obstructed tube, viz.: one which is sunken nearly to, or quite upon, the inner wall of the tympanum, the manubrium mallei much foreshortened, the color retained or more than normally translucent, and the light reflex absent or much lessened and limited to a marginal position in the anterior inferior quadrant. If real tissue changes have extended to the tympanum, we see opacity instead of translucency of the membrane, in which case the prognosis as to hearing should be more guarded. It seems superfluous to say that, to treat these cases successfully, the cause must be removed; it does not seem to be so generally recognized, however, that the earlier these cases are relieved of their adenoids the more certain is the result to be *entirely* satisfactory.

DISCUSSION.

Dr. Henry Wallace: Mr. Chairman, Dr. Dudley has covered the subject so completely that I do not know I have anything to add. The size of the growth as compared to the size of the cavity has much to do with the severity of the symptoms. It is very difficult to make a satisfactory examination in a child by rhinoscopy. The examining finger is much more satisfactory. As to the operation, whichever instrument and posture with which a man can do the best work, those he should use. An anesthetic should be given.

Dr. William A. Northridge: Mr. Chairman, we have all been impressed by the good results following operation in these cases of post-nasal obstruction. I desire to call attention to one point. Night terrors are more often caused by the presence of adenoids than is generally supposed, and in every case these should be looked for. If found, their removal will effect a cure. An anesthetic should always be administered when this operation is to be done.

Dr. H. C. McLean: Mr. Chairman, I have found adenoids to be the principal cause of deafness among school children. As to the use of an anesthetic, Dr. Huber does not use one when operating.

Dr. E. A. Day: Mr. Chairman, I would like to ask what significance adenoids have when they do not produce mouth

breathing, deafness or other symptoms. Half of the cases I have operated upon lately were not mouth breathers, but attacks of pharyngitis or slight deafness were noted. I can highly commend the use of the finger for examination whenever any symptoms are present. A point in regard to the examination. By urging the child to breathe deeply, the difficulty of getting into the pharynx is overcome.

Dr. Alexander Howe: Mr. Chairman, in operating for adenoids very satisfactory work can be done without an anesthetic. A trained assistant must be at hand to hold the child.

CLOSING DISCUSSION.

Dr. Dudley: Mr. Chairman, it should be remembered when deciding for or against this operation, that the extent of damage possible from an adenoid growth is not always in proportion to its size. The cubic area of the naso-pharynx is much smaller relatively in infants than in children; and in adults the space is at times underdeveloped, the roof of the vault may be low or the transverse diameter may be narrow. A hypertrophy, therefore, which may seem moderate upon digital examination can cause dangerous results. Occasionally we see patients having considerable adenoid enlargement, who give no history of abnormal post-nasal secretion or of ear complication, but I believe that these cases should submit to the radical operation, on the well-proven principle that the prevention of disease is even better than its cure. On the other hand, inflammation of the middle ear is not an uncommon sequence of slight hypertrophy, and the otitis resists relief-measures until the naso-pharynx is made clear and clean. For this reason, no excess of glandular tissue is too insignificant to be neglected; every case warrants the most careful consideration.

There are many methods advocated for performing this operation, and while I have a decided preference for one procedure I have purposely omitted its description in detail; but I would state positively that any surgical method, to be permanently effective, must accomplish a thorough removal of the hypertrophied tissue. And also, because the vitality of these patients is below par, the excision should be as rapid as is consistent, the element of shock should be reduced to the least degree, and the risk of injury to the adjacent structures from the instruments used must be carefully avoided. Adults usually tolerate ex-

cision under simply local anesthesia, but I am confident that in dealing with children it is impossible to perform a scientific operation without employing a general anesthetic.

Dr. Sheppard: I do not know that I have anything to add except to advise that all enlarged adenoids be removed. If left, they may produce middle ear catarrh.

THE BROOKLYN GYNECOLOGICAL SOCIETY.

The President, JOEL W. HYDE, M.D., in the Chair.

Program:

Specimens and Cases:

UTERINE FIBROMA;

W. E. Butler, M.D.

VESICAL HYPERPLASIA;

RETROVERTED AND RETROFLEXED UTERUS AND DOUBLE TUBE OVARIAN DISEASE;

OVARIAN CYSTOMA,

Clarence R. Hyde, M.D.

HYSTERECTOMY FOR HUGE FIBROIDS;

LARGE OVARIAN FIBROID (illustrated);

Robert L. Dickinson, M.D.

APPENDIX, GANGRENOUS;

L. Grant Baldwin, M.D.

Paper:

NOTES OF SOME FATAL CASES, AND ERRORS IN DIAGNOSIS,

L. Grant Baldwin, M.D.

SPECIMEN: UTERINE FIBROMA.

Dr. W. E. Butler: This specimen was removed from a patient, thirty-two years of age, married, mother of three or four children. She came into the hospital suffering from pelvic tenesmus, backache, constipation and the usual symptoms of a pelvic tumor. On examination one could feel a hard nodular mass down in the cul-de-sac, which was made out to be a fibroid. A hysterectomy

tomy was done, yielding the specimen here shown. The stump of the cervix was invaginated and the peritoneum thrown over by running sutures. At the end of two days the patient developed pneumonia which ran a fairly favorable course; then septic symptoms appeared and she died of toxæmia. No autopsy was allowed, so I cannot state the condition of stump and peritoneum.

A CASE OF VESICAL HYPERPLASIA.

Dr. C. R. Hyde: This case is from the service of Dr. Palmer. The patient is a girl, single, aged thirty-one years, a domestic. Her menses are regular, lasting three days, scanty, accompanied by no pain. There is no specific history obtainable. Her general health was good. The family history showed phthisis on the maternal side.

In June, 1900, she was suddenly taken sick with general abdominal pains and an inability to pass water, and was confined to her bed three days, after which she was able to go about her work. She then found she could not hold her water and had constant vesical tenesmus, pain on left side, and inability to lie on that side, which condition existed until her admission to the Long Island College Hospital.

Examination without anæsthetic showed the vaginal outlet, the vagina and the cervix normal, the uterus small and anteverted, and an apparently cystic tumor on the left, separate from the uterus. The patient was catheterized and much of this disappeared.

An examination under ether showed a small anteverted uterus with a seemingly cystic mass on the right and appearing to be intimate with the right cornu. A diagnosis of probable distended tube was made. The left tube and ovary were normal. An exploratory median incision was made and hyperplasia of the bladder was found; the viscus was in folds and sacculated, an exceedingly rare and interesting case. The wound was closed and the patient placed in bed. Later the bladder had to be irrigated on account of the occurrence of symptoms of cystitis. At the time of operation it was proven by means of a sterile sound introduced into the bladder, that it was that organ which was involved.

The patient has since been discharged from the hospital.

It would be interesting to know whether it was hyperplasia or hypertrophy of the bladder, and what were the determining causes. There was no history of stone or any obstruction to the outflow of the urine.

SPECIMEN: RETROVERTED AND RETROFLEXED UTERUS AND DOUBLE
TUBO-OVARIAN DISEASE.

Dr. C. R. Hyde: This specimen was taken from F. L., aged twenty-five years, married, a housewife, also a patient from the service of Dr. Palmer. Her last menses appeared in March, 1900, irregular and lasting three days. She has had no children and no miscarriages. She has been feeling badly for seven years and has had progressive emaciation; general health poor; family history shows phthisis in father and brothers. She complained of general abdominal pains, more on the right side; backaches; no leucorrhœa.

Examination showed a retroverted and retroflexed uterus with double tubo-ovarian disease.

Dr. Palmer operated by median incision, doing a modified Davenport operation, and removed this specimen. It was placed in formaldehyde and, therefore, is much shrunken.

A SPECIMEN: OVARIAN CYSTOMA.

Dr. C. R. Hyde: This specimen is one of Dr. Joel W. Hyde's, showing how much trouble may be caused by an adherent ovarian cyst.

The patient, A. U., single, fifty-five years of age, housekeeper. She passed the menopause five years ago. During the past few years she has complained of pain in the rectum and absolute inability to have a movement of the bowels without the use of a purgative. There was great distress in the back and an increasing distention of the abdomen, due evidently to an accumulation of fæces. The patient presented herself for operation for supposed hemorrhoids.

Examination showed a small uterus crowded well up behind the symphysis, and a large cystic tumor filling the cul-de-sac and pressing well on the rectum. No hemorrhoids were observed. The patient was very stout, with a great amount of adipose tissue in the abdominal wall.

Median section was made; an adherent ovarian cyst was found, bound down to the rectum by firmly dense adhesions, and somewhat firmly attached to the pelvic structures on the left side. The right appendage was normal. The cyst was enucleated and removed. The operation was delayed by the amount of adipose tissue present. The abdomen was closed by layer sutures; in

the fascia a continuous silver suture was employed; the fat was brought together with a continuous catgut suture. Suppuration in the middle of the wound occurred on the tenth day, the wound being infected at the time of operation by the escape of the contents of a large sebaceous cyst which was being dissected out.

This patient weighed 270 pounds, and the abdomen was at least five inches thick, so that there was considerable difficulty during the operation in obtaining a good view of the field. Since the operation, this patient has passed immense quantities of faecal matter; she was at first surprised, then humiliated, and finally, disgusted at the amount passed. She would fill the bed-pan almost as fast as it was placed under her. Her size has greatly diminished, and her clothes will not fit her at all.

I believe that the wound closed up so well because the fat itself was brought together by a continuous catgut suture, which left no dead spaces. In Dr. Palmer's two cases, instead of burying interrupted chromicized catgut sutures in the fascia and so inviting suppuration, the fascia edges were overlapped and approximated by a continuous silver wire suture, the ends of which were brought out at the angles of the wound. At the end of two weeks, the suture was withdrawn, the same as a subcuticular. In this manner, no foreign body nor unabsorbable suture media remains in the wound.

DISCUSSION.

Dr. Palmer: I have had a fairly good number of cases in which I have used the continuous silver wire sutures. I have had no trouble in these cases, and in each there has been perfect union of the fascia with a strong linear scar. Four or five years ago I used the method advocated by Dr. Kelly of burying the interrupted silver wire suture; many of the patients complained and came back for the removal of the sutures. Dr. Phelps has called attention to the use of continuous silver wire sutures in 216 cases of herniotomy, and reports, I believe, but eight cases of suppuration and no recurrences. It has proven in my hands a very satisfactory suture, and, so far, I have never been compelled to open a wound for its removal. Even if suppuration did occur with the continuous silver wire suture all that is necessary to do is to open down to the fascia and cauterize with carbolic acid, neutralizing with alcohol.

Dr. W. B. Chase: I should like to inquire in regard to the amputation of the upper part of the uterus—was the uterine cav-

ity opened or only the parts above? At what level was it done?

I am much interested in the question of buried sutures. I can readily conceive how the silver wire introduced and later withdrawn will facilitate union of the fascia where it overlaps; and yet I fail to see the superiority over the other sutures. Now, if we go over the history of sutures we will find that during the past ten or fifteen years there has been quite an evolution with a tendency for surgeons to disregard all buried and unabsorbable sutures and use absorbable sutures. I believe the tendency now is to leave nothing, so far as possible, in the tissues except what is absorbable. I regard it as unsurgical to leave anything behind which cannot be absorbed.

Dr. Ernest Palmer: Almost the entire fundus was removed. None of us know how long the suture remains *in situ*. The essential thing is to get the fascia to unite; then, I believe, it is a good cardinal law of surgery that we should not leave any foreign bodies in the wound if we can avoid doing so. My idea relative to the suture is that, after it has performed its function as generally accepted, being an aseptic material, we could leave it in for an indefinite period of time and eventually remove it. I do remove such sutures.

As to this case of bladder trouble the report of the examination of the urine revealed nothing; there were no symptoms of cystitis whatever. The urine had a normal reaction. There was no residual urine in the sacculation on account of the bladder being thrown over in front of the pubes. The urine did not remain long enough to become decomposed. No pus was present. As to what existed at that time it was my opinion that there was a peritonitis about the fundus and the broad ligament. The bladder was at least one and a half inches thick, and the thickness was very evenly distributed. The resiliency of the bladder was similar to the feel of the squeezed out udder of the cow. I knew of no surgical procedure that I could adopt there, so I sewed up the wound. The patient recovered, and the bladder trouble has been much better.

Dr. Jewett: Dr. Palmer's suggestion seems to me an excellent one. Permanently buried silver or other non-absorbable sutures, however, I believe are wrong. The use of a suture is to maintain apposition till union occurs. After firm union the suture is no longer needed and it may become a source of trouble. If union has failed, the suture will not take the place of it. It will cut out. I formerly made considerable use of buried silver wire,

especially in ventral hernias, but have abandoned it. I prefer not to bury even a chromated catgut suture. My fascial sutures, like all other buried sutures, are plain catgut. Many mural abscesses, I believe, will be prevented if the superficial fat layer, when at all thick, is lightly sutured with finest catgut, as Dr. Butler has advised.

HYSTERECTOMY FOR HUGE FIBROIDS.

Dr. R. L. Dickinson: Mrs. W. S., aged forty-two, was operated on at Brooklyn Hospital, for very large fibroids. They have existed ten years. For six years there was no growth, and she reported yearly to Dr. Skene. Up to four years ago the mass extended to the navel. Since that time it has been steadily growing. A course of electrical treatment had been persisted in for a long time before she saw me.

The patient weighs 200 pounds, but is tall and vigorous, and this weight is well carried, except for the abdominal prominence, which resembles full time pregnancy with twins. Married many years, has had no children; had one miscarriage twelve years ago with severe hemorrhage. There is no menorrhagia.

The fibroids occupied nearly the entire abdomen. The ribs were pushed up strongly on the right side. The pelvis contained only the uterus and one or two nodules. There has been an umbilical hernia, but the tumors were now flatly applied to the anterior abdominal wall.

In order to deliver the great mass which was covered by a network of sinuses, some of them as broad as the thumb, the incision had to be extended upward to within two inches of the sternum. The instant after the tumor mass was lifted through the incision, and dragged downward over the pubes, the peritoneum of the upper two-thirds of the incision was caught in clamps, and at once united by a running suture. Thereby no contact whatever was made with any intestine or peritoneal surface, except in the immediate neighborhood of the pelvis. The bowel was thus kept warm. I think I shall do this with my next Cæsarean section.

The peritoneum has been lifted from its attachments from the lower abdomen at many points, so that distortion, edema of the broad ligaments, and many cystic accumulations delayed a swift removal of the mass. A perfect covering-in of the broad, raw area, and its narrowing to a four-inch result, and the suturing of this long wound took some time. Five silver mattress stitches were buried in the fascia between the figure of eight chromic gut

sutures, because of the umbilical rupture and because the abdominal wall was very fat.

The patient has made a prompt recovery. The mass, after the blood leaked out of it, weighed $18\frac{1}{2}$ pounds, and sprang from the fundus.

LARGE OVARIAN FIBROID.

Dr. R. L. Dickinson: Miss I. S. is a big muscular negress of thirty; a cook. For four years she had had soreness in her

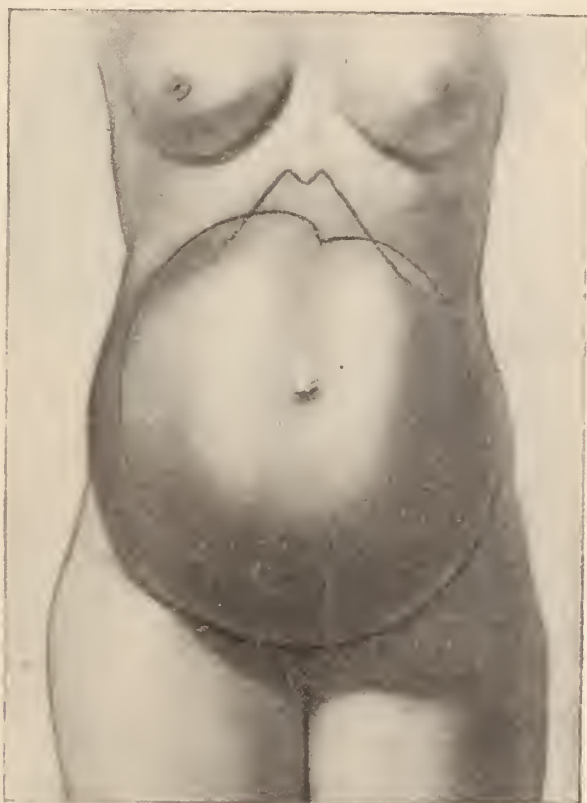


Fig. 1. Enormous uterine fibroid, weighing $18\frac{3}{4}$ pounds, successfully removed. Its outline is dotted.

side with attacks of pain at intervals of two weeks to three months, so severe that her screams could be heard a block away. Dysmenorrhea had existed since puberty. Pregnancy was admit-

ted. The tumor is $7\frac{1}{2}$ inches in diameter, and floats above the pelvic brim. It can be displaced very readily up to the diaphragm, but returns to the lower part of the abdomen slowly. Its consistency is that of a fibroid, the location being central, and the pedicle long.

At Brooklyn Hospital, October 13, 1900, the growth was removed. It was found attached by a long pedicle to the left broad ligament. Its pedicle had a twist of 180 degrees, and contained



Fig. 2. Lateral view of fibroid to show its attachment to the back of a small uterus and the venous sinuses an inch in diameter just above the pelvic brim.

veins nearly as large as the thumb running to ovarian vessels. The omentum was adherent.

The right ovary contained many small cysts and was resected. In the anterior uterine wall lay a fibroid, one and a half inches thick, which was enucleated. The broad ligaments showed very large varicose veins. The appendix was congested, flexed, and adherent. It was removed. The belly-wall had a three-inch fat layer. As the patient was a cook and laundress, three buried sil-

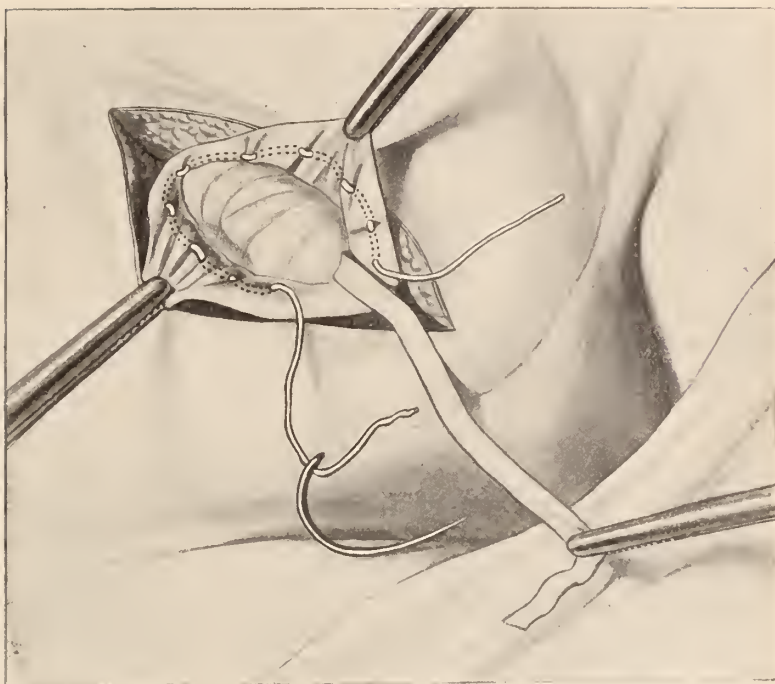


Fig. 3. Method of closing the peritoneum in short incisions; a purse-string, as shown, or over and over the edge. A gauze laparotomy sponge with tape and clamp keeps the bowel back.

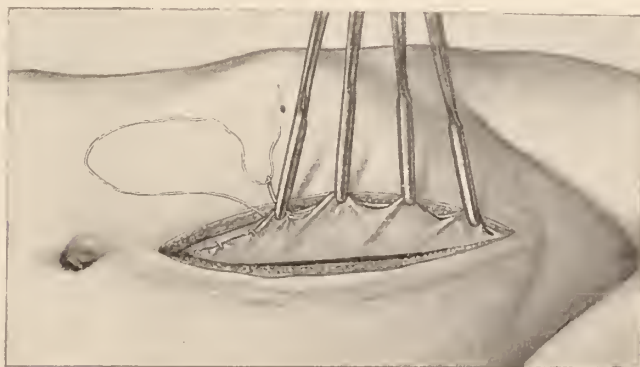


Fig. 4. Method of closing the peritoneum in long incisions; no sponge lies over the intestines; the two edges of the serous membranes are caught together by artery clamps and lifted into a tent, and along this ridge the suture is run.

ver mattress sutures were placed in muscle and fascia, together with the continued chromic gut stitching. Fat and skin were drawn together by a figure 8 silkworm stitches. Beyond a little pus in the drainage openings made in the fatty layer, recovery was smooth.

THE DESIRABLE METHODS OF CLOSING THE PERITONEUM.

To close the peritoneum when the incision is small, the purse-string catgut stitch is best, because it leaves a minimum danger of adhesion.

To close an incision that is too large for this method, I proceed as follows: The edges of the peritoneum are drawn upward through the incision and the two sides caught together in artery clamps about $1\frac{1}{2}$ inches apart all along the wound. By drawing upward on the handles of these clamps bunched together, a tent of peritoneum is made, the projecting edges, which would correspond to the ridge pole of the tent, being raised to the skin level or above. No sponge is required beneath the peritoneum and over the intestines to hold the bowel back, for by this method a considerable space separates the bowels from the top of the tent. Along the apex of the tent a continued stitch can thus be run rapidly—more rapidly than by any other method I know.

Where very large incisions are required to deliver solid tumors, the pedicles of which are not themselves of great size, the peritoneum should be closed the moment the tumor is lifted, and without contact of the bowel, if possible. This protects the intestine from chilling and infection. Such closure should leave only room sufficient to treat the base or pedicle of the tumor. Shock from exposure and handling the intestine is one of the three most serious dangers in removing large abdominal tumors. In my third Cæsarean section the pulse jumped to 120 with the first handling of the bowels, and before much bleeding occurred, and the frail little woman died of shock twelve hours later. Any method which will lessen the number of contacts with the most sensitive of peritoneal surfaces—that of the small intestine—is most desirable. The hot towels piled on the bowels rapidly lose their heat, and if water is poured over them at short intervals to warm them the patient is soaked and chilled about the trunk.

Dr. J. O. Polak reported some cases of pus tubes operated

upon through the vagina by section. Two of these he subsequently laparotomized for other conditions.

The first woman was operated upon in June of this year for a pus tube following miscarriage. Vaginal section was made, the tube was brought into the opening in the vagina, incised, evacuated, and drainage established. The patient made an uneventful recovery. This fall she presented herself again with an ovarian cyst the size of an orange, situated on the other side. The abdomen was opened and the cyst removed. The interesting point was that the tube on which the operation had been done through the vagina for an acute accumulation of pus was apparently normal, there being no thickening and no adhesions save at the point of the vaginal section.

The other case was a similar one that had had an enlarged pus tube, the size of one's fist. In this case it was not possible to bring the tube down and out through the vaginal incision without exposing the peritoneum to a good deal of infection by breaking up the walling adhesions, so it was incised and drained through the vagina. Three months later she was laparotomized for appendicular trouble. The other ovary, tube and appendix were removed. The tube operated on previously showed that it was in the best possible condition, except for a hole, between one-quarter and one-half an inch from the fimbriated extremity, the site of the primary incision. Pregnancy has occurred in one of the cases.

Dr. Charles Jewett: I have a patient in the hospital with a history similar to that of Dr. Polak's. A little more than a month ago I operated for chronic pyosalpinx through a posterior vaginal incision. The tube was drained and the patient left the hospital after three weeks. A few days ago she came back with a tumor at the seat of the tube. I assumed that drainage had not been properly carried out, and that there was another pus collection. On opening the abdomen the tumor proved to be an encapsulated serous exudate nearly clear fluid. This was removed. The tube had returned nearly to its normal size and appearance. As it was somewhat nodular and the ovary was diseased, tube and ovary were removed.

Drainage from below is applicable in certain acute and in some chronic pus tubes in which the tumor presents at the vagina. The tube is saved, regeneration takes place, and generally a satisfactory clinical cure results.

Dr. J. O. Polak: In answer to Dr. McNaughton I would say that we occasionally find gonorrhœal tubes which can be saved

by posterior section and incision along the dorsum of tube, sewing the mucous membrane to the tubal peritoneum and draining. I have done it several times, and have been much surprised to see prompt recoveries. Patients recover much more rapidly, and it often saves them an abdominal section.

SPECIMEN—A GANGRENOUS APPENDIX.

Dr. L. Grant Baldwin: This specimen I removed from Miss X., aged sixteen years. Seven years ago she had her first attack of appendicitis. This did not recur again until 1895, two years afterwards, following an injury from bicycling. She was in bed two weeks at that time, and the question of operation was submitted, but deferred. From that time until the summer of 1899, she was comparatively comfortable. In August, 1900, she had a more severe attack than she had yet experienced. It responded to the cold applications, and she was advised to wait for an operation until she got home from the country. Her menstrual history was a normal one; it commenced at the age of thirteen and was always regular. She came to me about two weeks ago with constant pain in the side and a constant fear of being hit. I was able to feel her appendix and advised its removal.

The operation was performed, and I found recent adhesions of the omentum over the appendix. The appendix was not much adherent. As it came out it stiffened up as would a small sausage. The distal end was apparently perfectly normal, but the rest was almost gangrenous. What was supposed to be an elective operation proved to be one of emergency. The appendix contained two large concretions, which are now somewhat softened.

Dr. W. B. Chase: With regard to the case reported by Dr. Baldwin, which died from symptoms of acute dysentery, many patients are strongly susceptible to doses of calomel; some, in my experience, to $\frac{1}{10}$ of a grain. I should like to ask if it be not possible, in patients who are greatly susceptible to the influences of mercury, for such doses of calomel to excite just such a case of dysentery as described.

A patient of mine, four or five years ago, required a repair of a cervix and perineum, the rupture having occurred some time previous. This woman was in fine physical condition. I gave her a most thorough and careful examination before the operation. A thorough examination of the urine was made. The operation was not a long one, but on recovery from the ether the woman became mildly delirious. The temperature taken

shortly after the operation was 100 or 101 degrees, and rapidly arose in the neighborhood of 105 or 106 degrees, with symptoms of meningitis; the patient died of acute mania at a period within forty-eight hours. The question arose whether she died from the influence of the anesthetic developing mania, of meningeal origin, or whether there were coincident other causes which led its development.

Dr. W. E. Butler: In regard to this sudden rise of temperature I remember a case of nephrectomy in a case of gonorrhoeal ascending infection with a pus kidney. Abdominal incision was made, the peritoneum was opened, the kidney removed, the peritoneum completely sewn, and drainage established posteriorly. The temperature, in that case, was 103 degrees one hour afterwards; it gradually went up and six hours afterwards it was 106 degrees. Twenty-four hours later the patient died. There was no distention of the abdomen, no pus accumulation, no hemorrhage or symptoms of embolism. I concluded that the high temperature resulted from the shock due to interference with the sympathetic ganglia in the vicinity of the tumor.

Dr. Ernest Palmer: I admire Dr. Baldwin's courage in bringing before us this paper. Any man who does a large number of operations has had a similar experience in having a number of deaths which he could not account for. In my own work, *i.e.*, the removal of fibroid tumors, I have for a long time been cautious in giving an immediate prognosis; I invariably put it off until seventy-two hours after the operation. I have certainly seen a sufficient number of cases to make me believe that all fibroids are accompanied by a similar fibroid degeneration of the heart and that some of these patients die within seventy-two hours after the operation with symptoms of endocarditis more or less well defined, and am well satisfied that this is a common cause of death after hysterectomy for fibroids. To account for many other sudden deaths following operations, I believe that even pathologists at the autopsies often cannot solve the question.

In regard to the subject of ectopic gestation, I wish to indorse what Dr. Baldwin has stated; that the symptomatology, as laid down in the text-books, is valueless in making a diagnosis. Pain is not a constant symptom. Certainly if the rupture occurs early the pain may be severe; but I have repeatedly seen cases where rupture had occurred that felt slight pain, for which they were taking some simple remedy. Improvements in examinations, care in investigating these cases by men familiar with the sub-

ject will be productive of good results in the saving of a great many cases by operation.

As to the question Dr. Chase brings up as to the possibility of calomel producing dysentery, I should like to take a stand against that. I have often given fifty or sixty grains of this drug under certain conditions. This habit of giving calomel in such doses I probably imbibed from my former preceptor, who also favored large doses. One thing against its producing any such effect is the very fact of its use in large doses to set up an alterative effect in dysentery.

Dr. G. McNaughton: The late Professor Skene stated that if the intestines were pricked by means of the forceps there almost always followed an intestinal distention. I believe that is true. It does not follow in all cases in which the intestines are pricked, but this is a fruitful source of intestinal trouble.

Probably Dr. Baldwin remembers a case which died a few hours after operation in which the post-mortem examination of the peritoneal fluid microscopically proved the presence of septic germs; there were present no other symptoms except the intestinal paresis. From that time I have been a firm believer that intestinal paresis is due to sepsis.

I also believe that the literature on ectopic gestation, as well as a good deal on sepsis, should be rewritten. Sepsis occurring on the third or fourth day is exceptional rather than the rule. I have had a case of sepsis before the third day; there was no doubt about its being a case of sepsis. It is strange how different our experiences have been. In a series of sixty-five cases of tubal pregnancy of which I have the records, there is scarcely an exception without pain. I believe amenorrhœa does not exist so long as stated. At the time of primary rupture the pain is usually so severe in most cases that some relief is called for. At this time it is the general practitioner that is called in, and he regards it as probably a case of early abortion and as the hemorrhage and pain are continuous, he thinks the natural treatment is curettement. In order to arrive at a conclusion we must go back in the menstrual history several months. Certain facts should be emphasized—the absence of menstruation for a certain number of days, the occurrence of pain on one or both sides, and sometimes hemorrhage. If the impregnated ovum discharges into the peritoneal cavity there may be hemorrhage and collapse. The patient may not necessarily be in a state of collapse, nor will these cases always remain in a disabled condition, for, after the hem-

orrhage ceases, even though they have lost much blood, they will often get up and go about their work. Primary rupture occurs inside of eight weeks.

I must say that, in regard to giving calomel in ten-grain doses I am somewhat backward; I believe that the same effect can be obtained by the administration of smaller doses.

Dr. A. M. Judd: I would suggest that the third case reported was one of embolism of the pulmonary artery. I have seen one of those cases die in a similar manner.

I have seen an appendix similar to the one shown. There was a mistaken diagnosis of carcinoma of the cæcum. A distinct mass could be felt, but there was no rise in temperature. There had been the same history of previous pain on that side. At the operation the appendix was taken out and there was the same gangrenous condition that Dr. Baldwin found.

Dr. McNaughton: I should like to ask Dr. Baldwin if the temperature or pulse was affected.

Dr. William Maddren: Dr. Judd's remarks have anticipated my thoughts of the probability of embolism of the pulmonary artery or heart thrombus being the immediate cause of death in the second case. I have had a similar experience where the autopsy proved the cause of death to have been embolism of the pulmonary artery.

Dr. Charles Jewett: Referring to the second case reported by Dr. Baldwin, the doctor assumes that death could not have been explained by sepsis, since the high temperature came on so soon after operation. One or two years ago I reported a case before this society in which a woman had been infected during labor; the initial chill and a temperature of 105° F. developed within twenty-two hours after the earliest time that infection could have taken place. Pus from the peritoneum after death yielded a pure streptococcus culture. The streptococcus had traversed the tissues from the lower border of the cervix to the peritoneum within the twenty-two hours.

Regarding the symptomatology of ectopic gestation, there are few pathological conditions in which typical symptoms are always present. In ectopic pregnancy it is the rule that the rupture of the tube is attended with intense pain. We all meet cases now and then in which the pain is apparently slight. Sometimes the history is possibly at fault in this matter.

One is often struck with the conflicting experiences of different observers. Dr. Baldwin's cases, all or most of them, had

skipped a menstrual period. That has been my experience, but a well known gynecologist who has operated in a large number of cases of extrauterine pregnancy recently stated that he had seldom or never seen a case in which menstruation had been suspended.

One of the most characteristic diagnostic features is the irregular flow. This is seldom absent. In my experience at least one menstrual period has been passed over, and more or less external hemorrhage almost invariably has attended the rupture. Pain, hemorrhage and collapse coming in rapid succession after a skipped period make the typical picture. The history then is of very great value and we seldom fail of recognizing ectopic gestation if we are looking for it.

The case of colitis, I am disposed to think, may have been the result of mercurial intoxication, as Dr. Chase suggests. This might be possible if the patient had been taking mercurials for a length of time, or if by mistake some of the mercurial antiseptic solution had gotten into the peritoneum or into the rectum or stomach. Had this been the case autopsy would have revealed not only a colitis but a glomerulo-nephritis.

Dr. E. A. Day: I remember a case following small doses of calomel, one-tenth of a grain tablets, not more than ten or fifteen being administered; here the patient received not more than one and a half grains.

Dr. J. H. Hunt: Some of these cases of poisoning that have occurred from the administration of calomel are explainable; the mild chloride of mercury in an acid stomach may cause the change of the mild into the bichloride and so produce poisoning. In giving hydrochloric acid in mixtures with calomel the latter is changed to the bichloride and what we really do is to give the bichloride instead of the mild chloride of mercury; this, of course, would produce symptoms of dysentery and mercurial poisoning.

Dr. Frank Baldwin: When the strong chloride is taken with suicidal intent the symptoms produced are precisely similar to those of dysentery; first, mucous stools, then blood, and then the case becomes a typical one of dysentery.

Dr. L. Grant Baldwin: In one or two cases a diagnosis of probable ectopic gestation was made. In two cases there was no suspicion of ectopic gestation until the abdomen was opened. A considerable time had elapsed since the original rupture, but the diagnosis, however, was confirmed by the microscope. In the

case I curetted myself, thinking it was a miscarriage, after the ether was administered I did make out an enlargement in the ovarian region. The diagnosis was confirmed by a subsequent abdominal section.

The time of infection in the second case, if it was due to infection by the streptococcus, was certainly much more rapid than any I have ever seen, and the symptoms were different. It was much more rapid than the one referred to by Dr. Chase, the initial chill occurring twenty-three hours after infection. In my own case two hours after possible infection the temperature was 101.5 degrees, and twenty-three hours after the patient was practically dead. There was no abdominal pain, no distention, no swelling, no characteristic temperature, or other symptoms that would suggest pronounced sepsis. Now, whether an embolism was present or not I do not know. I do not believe that that was a case of septic infection.

In regard to ectopic pregnancy, Dr. Judd misunderstood. I intended to lay particular stress in stating that pain and amenorrhœa were symptoms that were present; characteristic pain and amenorrhœa, when present, should make us open the abdomen; I do not hesitate in doing so. I agree with the statements made in reference to great carelessness; the mistakes that I have made have been due to carelessness.

In reference to the case of intestinal paresis, I did not open the abdomen earlier, because the patient seemed to be doing pretty well, and I hoped to secure the escape of gas from the bowel. When the distention did occur the symptoms came on so suddenly that it seemed futile to operate.

As to the calomel being a factor in the causation of dysentery, that appeals to me as much as anything I can think of. She had no mercury given her in any other form. I never have any bichloride solution around while operating. She had no douche following operation. Whether the gastric secretion converted the calomel into the bichloride, I cannot say. There was no stomatitis. Whether small doses of calomel, or ten grains of calomel had been given, her bowels moved thoroughly within twenty-four hours, and there was little or no vomiting. I should be glad to accept calomel as a cause of her death.

In reference to Dr. Butler's case of pus-kidney, I think it can hardly be placed in the same category as cases of large fibroids, because the case was already exposed to septic infection, and it was easy for the condition to increase with operation.

Embolism of the pulmonary or cardiac artery would certainly account for death in one case, and I am obliged to Dr. Judd for the suggestion.

In the appendix case, the only time the temperature was taken was prior to the operation, when the patient first consulted me in my office and just before the operation. There was no rise in temperature. The pulse was not rapid, ranging about 100.

LONG ISLAND MEDICAL SOCIETY.

E. E. CORNWALL, M.D., EDITOR.

The 101st Regular Meeting was held on the evening of March 5, 1901. The President, Dr. A. C. Howe, was in the chair. The scientific program was as follows:

STUDY OF CASES PRESENTING SYMPTOMS OF ASTHENOPIA AND ANOMALIES OF THE OCULAR MUSCLES, IN WHICH ABLATION OF FAULTY MIDDLE TURBINAL WAS EFFECTIVE TREATMENT.

BY DR. H. N. HOOPLE.

As Dr. Hoople's paper will be published in the *New York Medical News*, no further report of it is given here. It was discussed by Drs. P. C. Jameson, N. L. North, Jr., J. C. Hancock and A. C. Howe.

INFLAMMATION OF THE FRONTAL SINUSES ACCOMPANYING GRIP.

By Dr. A. C. Howe.

In this paper Dr. Howe spoke of the frequency with which frontal sinus inflammation has occurred during the past winter in cases of grip not otherwise severe. The symptoms he had noted were as follows: Within forty-four hours after the beginning of the coryza, a sense of discomfort and pressure developed across the lower part of the frontal bone and behind the root of the nose. Later it increased over one or both eyes. The mucous membrane of the nose was deep red, and swollen so as almost or quite to occlude the passage, and was covered with a thin secretion. One

or two days later the sense of discomfort over the eyes increased to an intense, throbbing, bursting pain, which was usually worse over the left eye than over the right, and which usually radiated upward and around to the side of the head. Lachrymation was free, and the bulbar conjunctiva was injected. Occasionally photophobia was noted. There was decided tenderness on pressure over the root of the nose and both above and below the orbital arch. The supra-orbital pain either subsided quickly, or dragged along for weeks or months. The fever ranged between 99° and 104° , but was probably not all due to the sinus inflammation. In all cases observed by Dr. Howe, one or more of the following conditions existed in the upper anterior part of the nasal cavity: The lamellæ of bone in the middle turbinal had undergone cystic degeneration; the mucous membrane had undergone polypoid degeneration; or the septum was deflected to the affected side, so that the normal turbinated completely filled the space between the septum and the middle meatus. These conditions, Dr. Howe thought, were the causes of the occlusion of the nasal duct, and not the inflammatory swelling of the living mucous membrane. Relief of this occlusion was usually followed by a free muco-purulent discharge.

Dr. Howe reported seven cases of grip complicated by frontal sinus inflammation, which he treated as follows:

When occlusion existed, he immediately opened the nasal duct by local applications of cocaine, or supra-renal extract, in the turbinals, and kept the nasal mucous membrane depleted, or removed the offending turbinal. To relieve the pain, he applied leeches to the root of the nose and on either side of the supra-orbital notch, following the bleeding by application of the ice-bag. Hot applications, also, in some cases, relieved the pain, especially when alternated with cold applications. Quinine or cinchonidia was also given.

Dr. Howe's paper was discussed by Drs. S. N. Lutz, B. W. Collins and Dr. H. N. Hoople.

Dr. Lutz had found that in grip cases of frontal sinus inflammation, hot air injections gave great relief after drainage had been established.

Dr. Collins reported a case of grip occurring in a patient with chronic ethmoiditis—no frontal sinuses—which was followed by cerebral hernia, meningitis and death.

Dr. Hoople believed that the early removal of the middle turbinal would relieve the symptoms in these grip cases of frontal sinus inflammation.

A REPORT ON SPINAL ANÆSTHESIA.

By Dr. W. F. Campbell.

In this paper Dr. Campbell described the technique of spinal cocainization and its scope of usefulness.

A two per cent. solution of cocaine in boiled water is used, the solution being boiled for one minute immediately before injection.

The needle is thrust in for $3\frac{1}{2}$ inches between the third and fourth, or the fourth and fifth lumbar vertebræ, while the patient bends forward. A few drops of cerebro-spinal fluid are allowed to flow out through the needle, then the needle is plugged by the thumb, and the syringe attached. The injection is made slowly, occupying about one minute. The anæsthesia gradually creeps up from the feet to about the level of the umbilicus, rarely higher, and is complete in about ten minutes.

This form of anæsthesia is serviceable for operations on the lower extremities, and around the rectum, and for varicocele, but is not satisfactory in operations on hernia. Its range of usefulness is much narrower than that of ether, and it is more dangerous. But it can be used in some cases where ether is contra-indicated, and that constitutes its chief value.

Dr. Campbell's paper was discussed by Drs. J. O. Polak, J. M. Winfield and R. H. Pomeroy.

Dr. Polak spoke of some accidents which had occurred in the use of spinal anæsthesia. He also spoke of the usage of some operators, who allow as many drops of the cerebro-spinal fluid to flow out as they inject drops of the cocaine solution, which they inject quickly.

Dr. Winfield reported two cases in which he had used spinal anæsthesia. In the first, complete anæsthesia was secured around the hernial region, and the operation for hernia was successful. In the second case, an external urethrotomy, the introduction of the gorget into the bladder was attended with some pain, and for three days after the operation there was an oozing of blood from the bladder—this patient was not a bleeder.

Dr. Pomeroy reported his experience with spinal anæsthesia in a case of labor. He applied it at the completion of the first stage. The anæsthesia was complete from the waist down. The patient had no sensation other than of something going on in the abdomen. After one and a half hours sensation began to return.

and the forceps were used to complete delivery. Dr. Pomeroy did not consider spinal anaesthesia of very much use in obstetrics.

OVARIAN CYSTOMATA.

By Dr. H. T. Hotchkiss.

Following is a brief summary of this paper :

Our present knowledge of the pathology of ovarian cystomata is not much greater than it was thirty years ago, and may be epitomized in the statement that cysts, like other new growths, are due to disturbed and deranged cell histogenesis. While the dictum of previous years remains, accumulated facts and the perfection of technique in pathological investigation have crystallized our knowledge, past and present, into a more harmonious whole. Among the causes of the cystomata is the very great cell activity consequent upon the conception, development and birth of a large number of ova in the cavity of a Graafian follicle, which increases the chance for the straying of cells from natural channels. In the character and relations of the minute anatomical structures appertaining to the ovarian adnexa may be found reasons for the extreme liability to the occurrence of new cell growth in malpositions. The histological element is the etiological factor in the pathology of ovarian cysts. Text-books have classified cysts both according to shape and according to the starting point of the growth. The first classification is simple and unimportant, and the other also, except for its scientific interest, because the starting point, or cell element, cannot be determined except on microscopical examination, ante or post-mortem, but always post-operative. From a practical point of view, ovarian cysts are benign or malignant, that is, the patient will recover or will not. It is safe to regard all new growths, which can be determined as such, fit for removal. Benign growths in the uterine adnexa do not remain long as such. Ovarian growths are growths of degeneration. The basis on which the practitioner decides whether a new growth in a given case exists or not, is the evidence given by the history of the patient, by palpation, and by the bimanual touch, and the comparison of this evidence with that given by other cases of unquestioned authenticity. This bimanual touch, of course, affords much exact information where the growth is of considerable size; but having seen skilful examiners find enlarged ovaries where operation

proved either their absence or atrophy, the author is inclined to be skeptical regarding the accuracy in all cases of this bimanual touch. Sufficient attention is frequently not given to the history of the patient. From that, and from the symptoms and information given by examination, which should be carefully weighed, the diagnosis is made. As to treatment, there can be but one course, and that is, early operation. In conclusion, Dr. Hotchkiss gave the history of an interesting case of ovarian cystoma on which he operated, in which torsion of the pedicle was found.

Dr. Hotchkiss' paper was discussed by Drs. J. O. Polak and Dr. W. F. Campbell.

Dr. Polak thought that when fluid is found free in the abdomen in operation on a case of ovarian cystoma the case is hopeless, because the fluid is cyst fluid from a malignant growth, and infects the abdomen. He thought that menorrhagia was not a common symptom in ovarian cystoma. He thought that the normal ovary could be always felt on palpation in women of moderate leanness and lax abdominal walls.

Dr. Campbell spoke of the atrophy or degeneration which some tissues show under different forms of congestion, particularly varicosities. He thought it likely that the ovaries, under congestion, atrophied, or degenerated into the cystic condition.

THE BROOKLYN SOCIETY FOR NEUROLOGY.

W. H. HAYNES, EDITOR.

Regular Meeting, Jan. 31, 1900.

The President, Dr. W. H. Haynes, in the Chair.

The President read an inaugural address on "Another plan of State care for the insane," which was discussed by Drs. Warren of the Long Island State Hospital, Flatbush; Dr. Wilsey, of the Long Island Home, Amityville; Drs. Barber, Morton, Browning, Lloyd and Combes of The Sanitarium, Flushing.

It was moved, seconded and carried, that the Secretary be instructed to request the Hon. Dr. N. H. Henry, chairman of

the Assembly Committee, to add to his bill a section allowing the detention of an insane person on the sworn affidavit of two examiners in lunacy to that effect for a period not longer than five days before commitment by the court, which was a section of the law prior to the one now in action.

THE BROOKLYN SOCIETY FOR NEUROLOGY.

B. ONUF, M.D., EDITOR.

Regular Meeting, Feb. 28, 1901.

Dr. Wm. H. Haynes, the President, in the Chair.

Dr. A. T. Bristow read a paper on "Traumatic Neuritis of the Median Nerve," to be published in this Journal.

DISCUSSION.

Dr. A. C. Brush: Mr. President, one thing has struck me in listening to the excellent paper of the writer, and that is, how the modern theory of the neuron simplifies the complicated phenomena presented by this case. Instead of invoking the aid of an ascending neuritis which crossed over to the ulnar nerve by an anastomosis, of which there is no evidence, and of supposing the separate existence of trophic nerve fibers: how our present theory that the axis cylinder is as much a part of the ganglionic cell body as any other, simplifies this. According to our modern view, which I have stated, an injury to any part of the nerve must injure the whole: and as we now believe the nucleus is not the essential part of the nerve but presides over its trophic function, it is plain how trophic symptoms did occur in this case. Again we now know that though the fibers of the median and ulnar nerve are separate in the nerves, when they reach the cord they break up so that the various nerve cells for the performance of certain muscular movements are grouped together in the various levels of the cord: and that these cells are connected either directly or associated by their dendrites, thus explaining how an irritation of one nerve trunk can be transmitted to another without invoking an ascending neuritis.

Dr. Onuf referred to a case of traumatism of the popliteal nerve seen by him with Dr. F. C. Kennedy. A young man had received a stab wound of the thigh, leading to profuse hemorrhage, probably venous, as one would judge from the fact that in order to check the bleeding a surgeon performed an operation in the popliteal space, most likely ligation of the popliteal vein because ligation of the popliteal artery would have had no purpose. Evidently the popliteal nerve was injured accidentally in this operation, the patient being unable to move his foot and toes since that time. He was operated again some weeks afterward by the same surgeon, he thought, at least, in the same hospital, with a view apparently of removing the cause of the paralysis, but his condition remained unaltered.

When at the request of Dr. Kennedy the patient was seen at St. Catherine's Hospital, he showed both the sensory and motor paralysis corresponding to loss of function of the popliteal nerve, that is, of the posterior tibial and peroneal nerves. Dr. Kennedy, on operating, found the popliteal nerve embedded for a length of two or three inches in a mass of tough fibrous tissue from which it could not be freed, but no evidence of a break of continuity of the nerve was discovered. The plan of resecting the entire embedded piece of the nerve was considered by Dr. Kennedy, but abandoned for the present, as it would probably have been impossible to unite the central with the peripheral stumps after resection of such a long piece.

Dr. Onuf asked Dr. Bristow for suggestions as to the course to be pursued in such a case.

Dr. Bristow: From the history of Dr. Onuf's case one must conclude that the nerve was divided at the time of the first operation, and that the ends of the nerve were not found at the time of the last operation, as he states that the nerve could not be freed from the mass of cicatricial tissue in which it was embedded. If this was not done it seems that there was no evidence that the continuity of the nerve was unimpaired. It appears now as if it is absolutely necessary to dissect the nerve entirely free from the cicatricial tissue in which it is embedded, when it ought to be possible to recognize the divided ends and reunite them.

The paper was also discussed by Dr. Browning.

The Society, on motion of Dr. Combes, adopted a vote of thanks for Dr. Bristow's paper.

Dr. E. W. Wright read a paper on "The Optic Nerve and Its Conditions in Disease of the Nervous System."

DISCUSSION.

Dr. A. C. Brush: It is difficult to discuss such an immense subject as the optic-nerve changes found in the various forms of nervous disease as has been so admirably presented to us this evening. Only one thing struck me in listening to the paper, and that is that though the ophthalmoscopic findings are undoubtedly one of the greatest helps to diagnosis, they are not always satisfactory. I remember a recent case in the County Hospital, where the diagnosis lay between brain tumor and hysteria. The case was referred to a well-known ophthalmologist who gave the following opinion: "If the patient presented the symptoms of some brain affection I should call it a case of optic neuritis, but I have often seen the same appearance in healthy eyes."

Dr. Hoople: I did not come to this meeting to discuss the paper, but to hear it and to learn from it; yet, on your request, to speak, Mr. Chairman, I avail myself of the opportunity to state that I am personally indebted to the writer for this excellent paper.

The fact that the optic nerves are but a portion of the brain tissue projected out from its main body and prolonged into the orbits where their fibers arrive for distribution stripped of their protective sheath, renders them especially liable to injury from slight causes, especially retrobulbar, out of the scope of this paper. Very slight pressure from effusion in inflammatory states may injure these delicate filaments and destroy their function. Hence blindness so often after optic neuritis.

To me an interesting physiological study lies in the fact that, as the doctor has stated, photophobia is not a symptom in optic neuritis, nor in retinitis. The function of the optic nerves being to perceive and appreciate light, it is logical and natural they should not be offended by it, except when it is unnatural or too intense. Then we must look elsewhere for explanation of this phenomenon observed in other eye troubles, and the query naturally follows, how shall we explain photophobia? But as this question is aside from the scope of the paper, I shall not here enter on the discussion of it.

Dr. J. W. Ingalls: The invention of the ophthalmoscope by

Helmholz not only served to put ophthalmology upon a scientific basis, but it also greatly aided the neurologist, for, to quote Norris, the retina and optic nerve frequently become delicate exponents of intracranial changes. Unfortunately, from a diagnostic standpoint, diseased conditions of the brain or spinal cord do not always manifest themselves by eye symptoms. For instance, some cases of brain tumor continue for one or two years without any disturbances of vision, and not until a short time before death are there any retinal changes to be seen. On the other hand, a blurring of the disk may be one of the early danger signals.

We are greatly indebted to Dr. Wright for his highly scientific paper in which he has so clearly demonstrated the close relationship between neurology and ophthalmology, for the latter may very properly be considered as a branch of the former.

Dr. Onuf: Permit me to call your attention to the important researches of Bruns and Stölting on the condition of the optic nerves in disseminated sclerosis of the brain and spinal cord. These researches, embracing a great number of cases, brought out the interesting fact that, contrary to usual teachings, optic neuritis is quite a frequent manifestation of disseminated sclerosis, indeed often one of its earliest symptoms or even the only symptom of the early stage. This being the case, they point out how guarded one should be in the prognosis of optic neuritis in general, since even in such cases, which in their further course develop undoubted symptoms of disseminated sclerosis, the optic neuritis heralding the disease had in a number of instances ended in almost complete recovery. Dr. Onuf stated that he would like to hear of Dr. Wright's experience on that subject.

Dr. Wright, in closing the discussion, said:

The subject is truly too large for a paper of fifteen minutes, but an attempt has been made to emphasize the relationship between the optic nerves and the affections of the brain or spinal cord. Affections of the optic nerve, whether inflammatory or degenerative, are not indicative of especial lesions, but they are valuable signs or symptoms to be carefully weighed and relatively estimated with other symptoms in the formation of a diagnosis and prognosis and in the outlining of therapeutic action. To recognize accurately the true condition of the optic nerves is one thing, to estimate correctly its value is another thing and of greater importance.

E. G. congestion with edema of the optic nerve may be only

the result of eye strain, and with proper treatment subsides. It may be a stage in the development of optic neuritis, or it may be the condition preceding a white atrophy. How essential to verify by repeated inspections.

Congestion with edema continuing for some time is representative of those early changes in and about nerve fibers and nerve cells that are the primary consequences of arteriosclerosis. While we may consider that the optic nerves are prolongations of brain tissue, yet we must remember that the embryologists inform us that the nervous connection between the eyeball and the brain is the result of development of nerve fibers originating in the eyeball and developing toward the brain, while the greater number start in the brain and go to the eyeball.

This is an additional factor to be considered in the matter of photophobia in asthenopia and its absence in optic neuritis.

In disseminated sclerosis the usual condition found is atrophy. This atrophy may be preceded by the state of congestion with edema, which by some writers is called a mild optic neuritis. In the atrophy of disseminated sclerosis we are more apt to find scotomata in different parts of the field of vision, while in tabes it is usual to have a concentric contraction of the field for white. Repeated inspection of the optic nerve and repeated mapping of the fields of vision are essential in chronic cases.

A vote of thanks for Dr. Wright's paper was moved by Dr. Onuf and adopted by the Society.

The president informed the Society that the biography of Dr. J. C. Shaw, prepared by a committee of the Society, had appeared in Vol. LVII., No. 3, 1901, of the *American Journal of Insanity*.

MEDICAL NEWS.

EDITED BY CHARLES DWIGHT NAPIER, M.D.

It is earnestly hoped that all members of the profession, possessing news concerning themselves or their friends, which would interest others, will communicate the same to the News Editor. Items for this department should be sent promptly to Charles Dwight Napier, 1277 Bedford Avenue.

It is with regret we announce the death of Dr. Charles E. Dority, of 411 Union street, which occurred on October 23rd.

Dr. George Armon Clark was married November 6th to Miss Nellie Louise Benedict, daughter of Mrs. Daniel Morehouse Benedict, of Danbury, Conn.

Dr. William B. Gibson, of Huntington, president of the Associated Physicians of Long Island, was successful in the recent election in his competition for the position of coroner.

Dr. Frederick H. Benton, assistant surgeon United States Navy, arrived home in November from the Philippine Islands, where he has been stationed for some time. He expects soon to come up for examination for promotion.

Dr. James L. Watt has been appointed assistant obstetrician; Dr. Cecil McCoy, assistant neurologist; Dr. Warren S. Shattuck, assistant otologist; and Drs. H. B. Gould and R. C. Lienau, assistant dentists, to the Kings County Hospital.

Drs. John R. Stivers and Eugene P. Hickock have been elected visiting physicians to the Kings County Hospital, vice Hallock R. Maine and Palmer Townsend resigned. They have both served on the assistant visiting staff for some years.

The third annual graduating exercises of the Kings County Hospital Training School for Nurses was held on November 7th. Dr. A. T. Bristow gave the address to the nurses, and Commissioner of Charities A. Goetting, Jr., also spoke.

On October 22nd Dr. William Browning entertained The Club at dinner, on the regular meeting night. The affair was in the nature of a house warmer, as the doctor has but recently completed extensive interior decorations and alterations.

It should be a source of regret to the profession that Drs. Harigan and Pflug, the only physicians running for the office of coroner, should have failed of election. Had the medical profession worked harder in their interests and secured a larger vote, the opposing party could have been made to feel that a strong sentiment existed in favor of medical coroners.

It would well repay those who know only the Flatbush Hospital of old to take a trip out to the practically new Kings County Hospital. Probably the most important of improvements there are the new wings in which are the toilet and bathrooms. But a few years ago the toilets were in the wards, and the bathing facilities decidedly insufficient. The present toilets, tub and shower baths would do credit to the best-equipped modern hospital. And in the new buildings the old style wooden floor is unknown.

Several physicians have been annoyed lately by fake calls. Dr. Barber received a telephone call to a regular patient in Flatbush. He found the supposedly very sick child playing in the street. Dr. McNaughton was notified that one of his horses had dropped dead, and he was urged to come at once. Another physician was brought to a dying patient in Sheepshead Bay, whom he found perfectly well. It has happened before that a number of doctors at the same time have been asked to call on a family, when it would be found they had sent for no one. A few years ago most of the physicians in the neighborhood of Franklin avenue and Fulton street were visited by two young women, who asked them to call at once on a woman who needed their immediate assistance. But in the recent cases the summons were to regular patients.

NEW BOOKS AND BOOK NOTICES.

All books received by the JOURNAL are deposited permanently in the Library of the Medical Society of the County of Kings.

PRINCIPLES OF SURGERY. By N. Senn, M.D., Ph.D., LL.D., Professor of Surgery in Rush Medical College, etc. Third edition. Thoroughly revised. Pp. 699. Philadelphia and Chicago, F. A. Davis Company, 1901.

The favor with which the preceding editions of this most valuable work have been received will, without a shadow of doubt, be extended to the present edition. It will not be possible to say less of it than has been

said in preceding reviews, and opportunity is afforded by the introduction of new material to add to the good words already said in its behalf.

In addition to a thorough revision of the text of the former editions, and the introduction of much new matter here and there in the original chapters, two new chapters have been added: one on "Degeneration," and the other on "Blastomycetic dermatitis." Many new illustrations have been added, most of which are original. GEORGE RYERSON FOWLER.

OPERATIVE SURGERY. By Joseph D. Bryant, M.D. Vol. I. General Principles, Anesthetics, Antiseptics, Control of Hemorrhage, Treatment of Operation Wounds, Ligature of Arteries, Operations on Veins, Capillaries, Nervous System, Tendons, Ligaments, Fasciæ, Muscles, Bursæ, and Bones, Amputations, Deformities. Plastic Surgery. Vol. II: Operations on Mouth, Nose and Esophagus, the Viscera Connected with the Peritoneum, the Thorax and Neck, Scrotum and Penis, and Miscellaneous Operations. New York. D. Appleton & Co. 1901.

The office and function of a work upon operative surgery is to set forth the operations in surgery in a concise yet instructive manner, and to bring to the attention of the operating surgeon the various procedures designed to secure the same end, with such comments upon each based upon the experience of the author as shall aid the busy practitioner in making a proper and judicious selection of the particular method which he may deem best suited to the case in hand.

The field to be covered is a large one, and is growing larger year by year. The surgeon is constantly enlarging his domain, and the end is not yet. Consequently the book under review has grown from a beginning as a portion of a library of hand books to a two-volume octavo work.

The scope of the book is such as to embrace the field of operative work with the exception of gynecology. The arrangement is a most excellent one. After describing the best operations known and employed to fulfil a certain indication, care is taken to call attention to certain fallacies, difficulties of execution, and points to which especial attention is to be given in carrying out the procedure, under the head of "The Precautions." Then follows a special paragraph with the heading of "The Remarks," in which, under certain circumstances, as for instance where the element enters into the consideration, as of greater or lesser importance, as the case may be, certain modifications of the operation described may be employed to the advantage of the patient, and finally, and not of the least importance, comes the question of "The Results," which is treated of in a separate paragraph. The whole arrangement is somewhat unique, and demonstrates the fact that the writer is an original thinker as well as worker and withal a most valuable purveyor, if the term be allowed.

The author has performed his task well. He is eminently qualified both as a teacher and an operator to produce such a work, and, in the intervals of his busy life he has managed to write a book that is pronouncedly useful to the student and highly satisfactory to the busy surgeon. To those who would wish to be abreast with the times the volumes before us will be most welcome.

GEORGE RYERSON FOWLER.

PRACTICAL SURGERY FOR THE GENERAL PRACTITIONER. By Nicholas Senn, M.D., Ph.D., LL.D., Professor of Surgery, Rush Medical College, Chicago. Phila. and London, W. B. Saunders & Co., 1901. 1133 pp., 8 col., pl. 8vo.

As stated in the publisher's announcement, the appearance of Dr. Senn's work has been awaited by the profession with much interest. But the statement made in the next sentence of the announcement, namely, that "the book deals with practical subjects, and its contents are devoted to those sections of surgery that are of special interest to the general practitioner," is scarcely warranted by the facts, if by this it is intended to characterize the book in its entirety. It is true that the book deals with practical subjects, but it does not deal with these alone, nor even in a relatively exclusive manner, as shown by the fact that a considerable amount of space that might have been more profitably taken up in a work of this character has been devoted to the details of experiments upon animals.

The next statement, viz., "Familiar with the needs of the general practitioner as a surgeon, the author has aimed to simplify and lighten his often trying work by a full discussion of those subjects that come within the legitimate sphere of the daily routine work of every practicing physician," would more properly fit the case if the last word had been printed "surgeon." Since the author, in his preface, sets up substantially the same claim as that made by the publisher, it is fair to criticize the book from this standpoint.

At the present day it is quite generally admitted that a work upon surgery intended for the instruction and guidance of the general practising physician shall give, in a clear and comprehensive manner, the rules of practice, based upon the results of experience of those who have had exceptionally large opportunities for observation and study in this class of work; while a discursive and argumentative treatment of the subject is reserved for the formal treatises. Viewed from this, the standpoint of those who are or have been practising physicians in the sense suggested by the author himself, the book before us is at once removed from the class in which it is aimed to place it. On the other hand, the ability of the author as a teacher correspondingly widens the field of the work in its usefulness to the surgeon. In other words, the book is inferior to many of the less pretentious works, so far as its usefulness to the general medical practitioner is concerned, yet it is replete with value to the surgeon himself. The every-day medical practitioner, when brought face to face with some dire emergency in which he will be compelled to rely upon his own resources, will turn away with disappointment from its theoretical disputations and accounts of experiments upon animals, and find solace in some well-indexed work in which, without waste of time and in a few well-chosen words, he will find the way pointed out for him to follow. The surgical practitioner, however, who wishes to compare his own work with that of a surgeon of deserved distinction, to draw inspiration from the words of a profound thinker, or to derive instruction from ingeniously devised experiments conducted by a master-hand, will read the book from cover to cover without weariness, and declare, at the end, that

his time had been well spent, even if he does not entirely agree with every argument offered, or subscribe to every proposition advanced.

On page 536 the author, in dilating upon the proposition that gunshot injuries of the larger joints should be treated conservatively, cites a number of cases that "came under my observation in Greece and Turkey." After giving short notes of 11 cases of gunshot injury of bones and joints in the military hospitals at Athens, and of 14 cases of the same character at Constantinople, the following comment is offered: "A glance at the foregoing report of cases from the Greco-Turkish war will suffice to show that infection and bad functional results were much more frequent on the side of the Turks, a circumstance that is plainly attributable to the more aggressive treatment that was pursued. The Greek physicians seldom interfered with the wounds, and pursued throughout a most conservative course, while the military surgeons of the Turkish army, stimulated by the example of a number of German physicians, resorted too frequently to the use of the knife, with the result that infection of the wound was a much more frequent occurrence, and the primary débridement and resection only too often resulted in delayed union, pseudarthrosis, and useless limbs."

The writer of this review had the opportunity at the same time and under precisely the same circumstances, namely, through the courtesy of Professor Galvani, at Athens, and Djemil Pasha, at Constantinople, of observing the series of cases cited by Dr. Senn. The impressions received, since confirmed by reference to notes made at the time, led to the conclusion that the Turks had a more difficult class of cases to deal with than the Greeks, owing to the character of the wounds inflicted. The Turkish wounded were injured by the Gras weapon, a discarded arm of the French army, and an older type of weapon, the muzzle velocity of which was still further interfered with in many instances by sawing off a portion of the original barrel, thus causing the weapon to approximate more closely to the ancient type of firearm in which were combined a short barrel, comparatively large caliber, and low muzzle velocity—a combination well calculated to inflict the maximum of damage, particularly in the case of a bone or joint. This was the weapon with which the Greek troops were armed and the Turkish injured wounded. On the other hand the Turkish troops were armed with the more modern rifle of the Martini pattern, and as a consequence, there was opportunity for a better showing and fewer resections among the Greeks, who were wounded by the weapon, than among the Turks, who were injured by the Gras weapon. A study of the cases as presented in the work before us, in view of the character of the weapon employed, will scarcely warrant the assertion that Djemil Pasha and his colleagues, together with the medical officers of the German Red Cross Society, who served in the Yildiz Hospital, the "German physicians" alluded to, did more or less than was necessary in dealing with the wounded under their care. This is confirmed by the fact, as noted by the writer at the time, that the Turkish wounded who were prisoners of the Greeks fared equally badly as their brothers who were treated in Constantinople, and the Greek wounded who fell into the hands of the Turks fared fully as well as those of their compatriots who were treated at Athens.

No one will question for a moment that in modern warfare the necessity for primary interference in cases of injury to bones and joints injured by a small projectile from a modern high velocity weapon is rarely demanded, save for the purpose of asepsis, and possible drainage. But, however much it may seem desirable to impress this teaching, scientific truth and accuracy demand that the question be viewed from every standpoint of criticism; and that, in making up the statistics from which deductions are to be drawn, so important a factor as the character of the missile should not be ignored. It is extremely to be regretted that the work of a master should be marred by an opportunity for this sort of criticism, but the reviewer's personal knowledge of the facts compels this mention.

The entire work is an admirable piece of book-making, and the publisher is to be congratulated upon the successful placing before the profession of the work of so renowned a teacher and author.

GEORGE RYERSON FOWLER.

TRANSACTIONS OF THE VERMONT STATE MEDICAL SOCIETY, 1900. Burlington, Vt. 1901. 195 pp. 8vo.

This volume of Transactions of the Vermont State Medical Society is a credit to our confrères in the "Green Mountain State," and contains many valuable contributions to the literature of medical science. The papers presented cover a large variety of subjects and their value is enhanced by the addition of comprehensive discussions.

SYSTEM OF PRACTICAL THERAPEUTICS. Edited by Hobart Amory Hare, M.D. Second edition, revised and largely rewritten. Vol. 3. Anesthesia and Surgical Technique—Fractures and Dislocations, and Minor Surgery—Surgery of the Lungs and Pleura and of the Peritoneal Cavity, the Rectum, and Anus—Diseases of the Genito-Urinary Apparatus and of Parturition and of the Puerperium—Diseases of the Eye and Ear, and of the Upper Respiratory Tract. Philadelphia and New York. Lea Bros. & Co. 1901. 841 pp.; 20 pl.; 8vo. Price: Cloth, \$5.00 net.

Of all the systems of surgery that have come to us, this one edited by Dr. Hare is the best. Commencing with a chapter on Anesthesia, by Leonard, we find most of the important surgical subjects ably treated by those whose names are closely associated with the topics on which they write. It is difficult to pick out the best, but Charles H. Frazier on Surgical Technique; A. J. McCosh, on Pleural Effusion and Empyema; Abscess and Gangrene of the Lung; George R. Fowler, on Peritonitis, Appendicitis, and Obstruction of the Bowels, seem to the reviewer to be chapters particularly complete and well done.

Chapters on Diseases of the Rectum and Anus, and Therapeutics of the Male and Female Genito-Urinary Tracts, express the latest knowledge of the surgical world.

We are particularly glad to see such complete chapters on Diseases

of the Eye, Ear, and Upper Respiratory Tract in a system on Practical Therapeutics. To the student this volume is of the greatest value.

The general practitioner and the occasional surgeon, who have not kept up with their journals, can turn to this book with the certainty of finding the best expression of modern thought on surgical subjects. The book has an excellent index.

W. B. BRINSMADE.

ATLAS AND EPITOME OF SPECIAL PATHOLOGIC HISTOLOGY. By Docent D. Hermann Dürck. Circulatory Organs. Respiratory Organs. Gastro-Intestinal Tract. With 62 colored plates. Philadelphia and London. W. B. Saunders & Co. Price, \$3.00 net.

The volume before us for review presents in compact form and scientific order the essential fundamental facts of the special pathologic histology of three organic systems.

The context is singularly free from verbosity and there is no effort to pad out descriptions to fill space. There is nothing new or original in the work excepting the unstinted use of polychrome illustrations. These are accurate and beautiful, and alone, without the context, are worth the price of the book.

The great difficulty heretofore in the production of such works has been the necessarily high price of the completed volume. This difficulty has been successfully overcome by Dürck in his first volume, and if the two succeeding volumes come up to the high standard attained by the first, a work will be available to all students of medicine which has never before been on the market.

We are thankful to Professor Hektoen and his publishers for placing in so attractive a form what must prove indispensable to American medical students, and invaluable to busy practitioners who lack the time for microscopic work.

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A New and Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and the Kindred Branches, with Their Pronunciation, Derivation, and Definition; including much Collateral Information of an Encyclopedic Character. By W. A. Newman Dorland, A.M., M.D. Second edition, revised. Philadelphia and London. W. B. Saunders & Co. 1901. 730 pp.; 19 pl.; 8vo. Price: Flexible leather, \$4.50 net.

We cannot commend too highly this excellent dictionary. Thoroughly up-to-date, its clear, terse definitions and its handy and compact form have won for it a well-deserved success. The first large edition was exhausted within eight months. Many additions have been made in this new edition, both of new terms and of useful plates and tables. Dorland's Dictionary has no superior in presenting so clearly so much valuable matter in so compact a form. The use of the flexible leather binding, and thin, yet entirely opaque paper, makes a most pleasing volume to handle.

ATLAS AND EPITOME OF LABOR AND OPERATIVE OBSTETRICS. By Dr. Oskar Schaeffer. Edited by J. Clifton Edgar, A.M., M.D. With 14 lithographic plates in colors, and 139 other illustrations. Philadelphia and London. W. B. Saunders & Co. 1901. Price, \$2.00.

This volume deals, as its title indicates, with the clinical phenomena of labor and with its treatment. Special attention is given to operative methods. It is beautifully illustrated with chromo-lithographic plates and line drawings.

This, together with the foregoing volume, affords in epitome a faithful reflex of the best German teachings in modern clinical obstetrics. Both are examples of the best style of the bookmaker's art, and the name of the editor is a sufficient guarantee of their value as text-books.

CHAS. JEWETT.

ANATOMICAL ATLAS OF OBSTETRICS, With Special Reference to Diagnosis and Treatment. By Dr. Oskar Schaeffer. Edited by J. Clifton Edgar, A.M., M.D. With 122 figures on 56 lithographic plates, and 38 other illustrations. Philadelphia and London. W. B. Saunders & Co. 1901. Price, \$3.00.

This volume is almost wholly concerned with obstetric diagnosis and treatment. Excellent lithographic plates give to the work much of the force of clinical teaching. The book is intended as an adjunct to the larger treatises, and within its extended scope it will be found an accurate and reliable guide in the study of obstetrics.

CHAS. JEWETT.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol II. June, 1901. Surgery of the Abdomen, Including Hernia—Gynecology—Diseases of the Blood—Diseases of the Glandular and Lymphatic System—Metabolic Diseases—Ophthalmology. Philadelphia and New York. Lea Bros. & Co. 1901. 470 pp.; 1 pl.; 8vo. Cloth. Price: \$2.50 net.

This volume is replete with interest and cannot fail to be of the greatest service to the busy practitioner. It opens with an article upon the radical cure of hernia, which embraces consideration of several new methods. Among these are to be particularly noted Piccoli's operation for umbilical hernia, and a critical review of Phelps's method for inguinal by the use of a mattress or cushion of silver wire, the supposed advantages of which are not altogether clear or supported by the reference. Due attention is accorded to ventral hernia, both from the standpoint of prevention, as well as that of cure. There is also an excellent résumé of the latest statistics upon the radical cure of inguinal hernia, which goes far to support the growing tendency on the part of surgeons to regard the question of the justifiability of interference in this class of cases as settled in the

affirmative, always excepting certain instances of the affection in which the presence of excessively large herniæ with greatly dilated rings and attenuated musculo-aponeurotic structures occurring in old and feeble individuals. Especial interest attaches to the statistics relating to the radical cure of femoral hernia, and a review of the ingeniously worked out yet quite complicated method of Bacon.

The article upon the surgery of the intestines is also full of matter which at once arrests the attention of the surgeon. The method of anastomosis, by Connell, is brought frequently forward, and carefully illustrated by the original cuts of the author. The writer is not impressed with the advantages of this "knots-all-inside" method. The presence of knots of fine silk upon the peritoneal surface has never seemed to work for harm, and when one considers this in connection with the complicated steps of the operation, the other equally trustworthy and simpler methods will certainly have the preference in the work of the every-day surgeon.

A résumé of the literature of cancer of the stomach would make it appear that no brilliant advances have been made in the past few years. The results of Mayo Robson's experience are given, and some new facts regarding the occurrence of malignant disease of this organ brought to light. All considerations of diagnosis in the malignant diseases as they attack this organ are fraught with especial interest to the surgeon, since it is in this direction that we must look for a lessening of the fearful mortality which attends operative attacks upon this organ for cancer.

The section upon the surgery of the liver is likewise a most attractive one, and the same may be said with emphasis of that upon the surgery of the pancreas, new impetus to the surgical lesions of which was given by the symposium, which was made the order of the day at the Paris International Congress last year.

The gynecological portion of the book is well handled. One fails to see, however, why rectal stenosis, excision of the tuberculous ulcer and uretero-intestinal anastomosis should be included in this section. Over eighty pages are devoted to a review of the literature of Diseases of the Blood and Ductless Glands; the Hemorrhagic Diseases and Metabolic Diseases. This statement alone will serve to show the increasing importance of these subjects, particularly with reference to the relation which they bear to questions of diagnosis.

The remainder of the volume is occupied by a review of the literature of Ophthalmology.

While the entire field of surgery is not covered, the selection of subjects for review is excellent, as well as that of the writers assigned to the work.

GEORGE RYERSON FOWLER.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE. By James M. Anders, M.D., Ph.D., LL.D. Fifth edition, thoroughly revised. Philadelphia and London. W. B. Saunders & Co. 1901. 1,297 pp.; 7 pl.; 8vo. Price: Cloth, \$5.50 *net*.

Five editions of a medical book within four years from its first appearance is sufficient evidence of its worth and of its popularity with the pro-

fession. The present edition is a thoroughly up-to-date work on the practice of medicine. New articles have been introduced and many chapters have been entirely rewritten and brought into harmony with the most recent developments in medicine. Especially is this noticeable in the chapters devoted to the Infectious Diseases, where there have been incorporated all the newly-discovered scientific facts. We commend it to all as one of the best text-books on the practice of medicine in the English language.

CLINICAL PATHOLOGY OF THE BLOOD. A Treatise on the General Principles and Special Applications of Hematology. By James Ewing, A.M., M.D. Philadelphia and New York. Lea Bros. & Co. 1901. xiii., 14—432 pp.; 14 pl.; 8vo. Price: Cloth, \$3.50 net.

Professor Ewing has written a timely and useful book in his "Clinical Pathology of the Blood." The work starts off with a very important introduction on the interpretation of analyses of the blood, in which the author warns the reader that the results are to be interpreted only in the light of the fullest possible clinical information. Part 1 is devoted to the general physiology and pathology of the blood; Part 2 to special pathology; Part 3, to the acute infectious diseases; Part 4, to constitutional diseases; Part 5, to general diseases of the viscera; Part 6, to animal parasites.

The book is illustrated with fourteen colored plates and numerous figures. An excellent feature of the work is the extensive and complete bibliography after each chapter.

The technical methods described are the latest and best, and altogether the work is of great value both to the practitioner and the laboratory worker.

E. H. WILSON.

PATHOLOGY AND TREATMENT OF SEXUAL IMPOTENCE. By Victor G. Vecki. Published by Saunders & Co. 1901. Third edition. 319 pp.

The former editions of this work have been favorably noticed by the reviewer in the *BROOKLYN MEDICAL JOURNAL*.

The book has already been commended for the manner in which the various topics treated of are discussed.

H. H. MORTON.

DIAGNOSTICS (THE) OF INTERNAL MEDICINE; A Clinical Treatise upon the Recognized Principles of Medical Diagnosis, Prepared for the Use of Students and Practitioners of Medicine. By Glentworth Reeve Butler, A.M., M.D. New York, D. Appleton & Co. 1901. xxviii., 1,059 pp.; 5 col. pl.; 8vo.

This book opens with a preface which modestly and generously expresses the hope that it will be found to contain the essentials for making a diagnosis, and that no helpful clue in obscure cases has been overlooked.

With the true spirit of the scholar and scientist the author set for himself the task of producing an exhaustive reflex of the well-tested diagnostic methods of internal medicine, and now submits the result as an

offering to his fellows with no flamboyant claims. An intricate and arduous undertaking it proved, but the reward, we are sure, will be very great. It will excite universal gratification in the profession by its happy arrangement, its clearness, exactness of statement, purity of style, admirable illustrations and generous index appended, which will make it a book of ready reference.

The volume is divided into two parts: Part I. The Evidences of Disease; that is, a brief consideration of the clinical anatomy and physiology of certain organs and systems, practical points of every-day utility; a description of the approved methods of examination; a careful consideration of the many signs and symptoms encountered in the practice of internal medicine; a statement of the diagnostic significance of each sign or symptom.

Part II. Diagnosis, Direct and Differential; that is, succinct descriptions of recognized diseases and their symptoms, with special reference to the diagnosis, direct and differential, of each disease. To this part several well written chapters are contributed by Frank W. Shaw, on Parasites and Intoxications; Henry G. Webster, on Diseases of the Kidney and Constitutional Diseases; Henry P. de Forest, on Diseases of the Blood and Ductless Glands, and Smith Ely Jelliffe and A. B. Bonar, on Diseases of the Nervous System.

Thus is rounded out a product of extended and careful research, years of active hospital and private practice, and devotion to the public welfare. As such it must call forth the thanks and patronage of the profession.

SYPHILIS, ITS DIAGNOSIS AND TREATMENT. By William S. Gottheil. Chicago. Engelhard & Co. 1901. 211 pp.

It has always been a source of surprise that the brief and masterly exposition of the subject of syphilis by Professor Finger, of Vienna, which presents all the essential features of the disease and its treatment, has never been translated into English.

In the little volume by Gottheil, while not a literal translation, Finger's book is followed very closely and the chief points in it are put in a form which is available to the practitioner who is not familiar with the German language, and, in addition, the American views on the treatment of syphilis are presented by an expert on the subject.

H. H. MORTON.

